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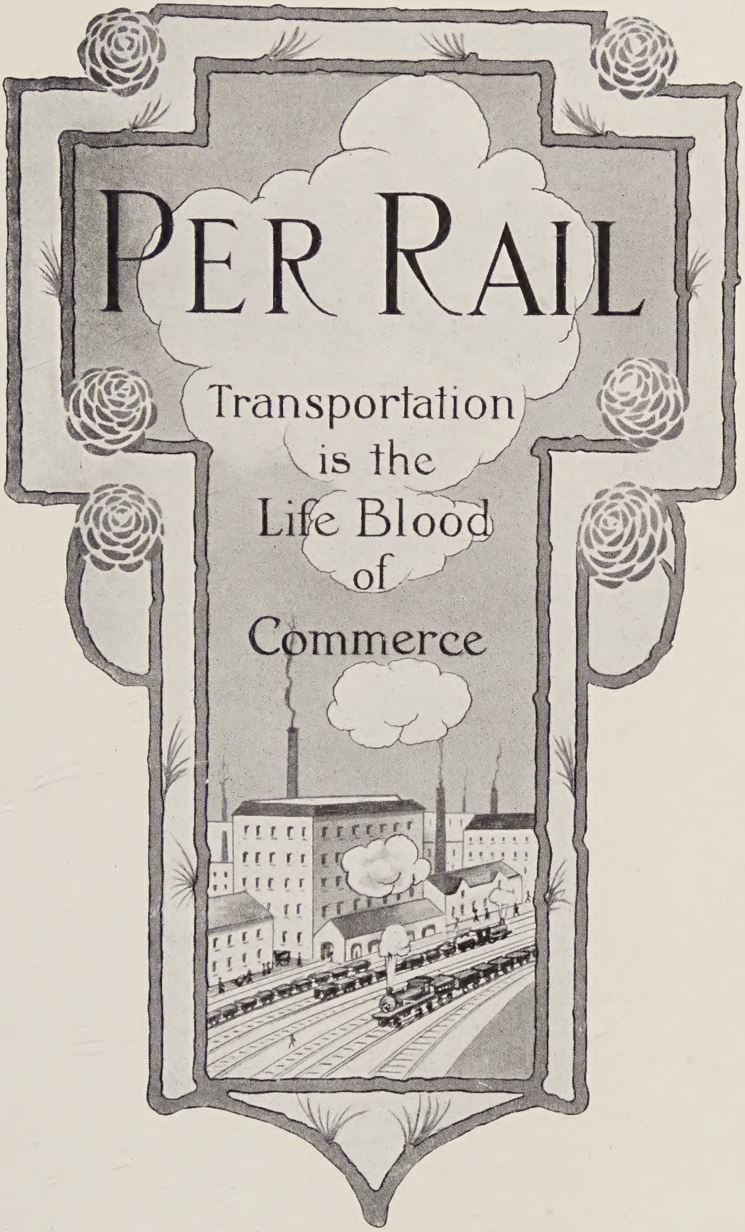

PER RAIL
Transportation
is the
Life Blood
of
Commerce

Attention is directed to the three special coloured maps insetted in this volume, as they doubtless possess more than a passing interest from a commercial point of view.

The Bird's Eye View of Immingham, *which will be found between pages 96 and 97 of the Chapter on this new East Coast Port, sets forth pictorially the admirable situation of Immingham, the excellent lay-out of the Dock, and its up-to-date equipment for the shipment of Coal and all kinds of Merchandise.*

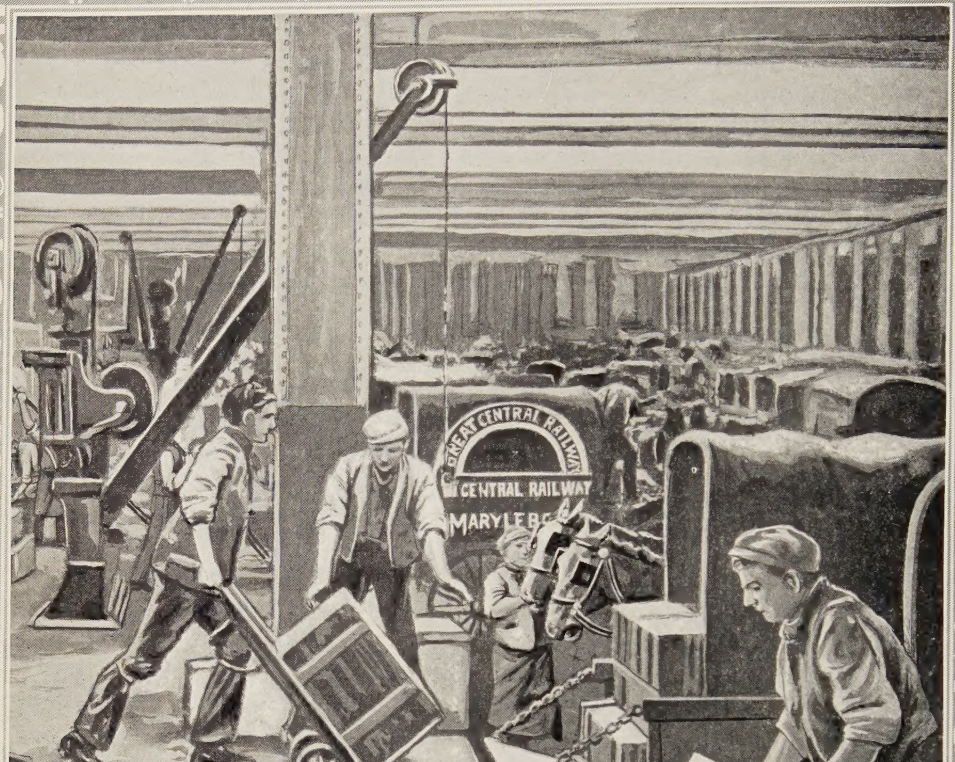
The Colliery and Industrial Map, *insetted in the Section on the Coal Mining Industry, specially appeals to all interested in Commerce. It defines the Areas of the developed and undeveloped Coal Fields of Central England, and marks the situation of the numerous Collieries and Industrial Centres, with their principal industries, served by the Great Central Railway. This Map, which has been drawn to scale, illustrates the important relationship which the Great Central system holds in regard to the transport of Minerals and Merchandise, both for home use and export.*

The Map of the Great Central Railway and its Connections, *included at the end of this volume, shows in colours the Manufacturing and Agricultural Districts, as well as the upland, pastureland, and moorland. The Great Central Railway and its connections with other lines are clearly delineated, and this Map should act as a key in solving the many problems which may occur in connection with the conveyance of goods* **"PER RAIL."**

INDEX TO SECTIONS.

	PAGE
ASHTON	155
BARNSLEY	123
BIRKENHEAD	184
BRADFORD	129
CATTLE MARKETS	235
CHESTERFIELD	52
COAL MINING INDUSTRY, THE	189
COAL TRAINS	203
DEWSBURY	133
DONCASTER	122
EXCEPTIONAL TRAFFIC	213
FRUIT SALES	235
GAINSBOROUGH	70
GLOSSOP	162
GRIMSBY	75
HADFIELD	162
HALIFAX	135
HAYFIELD	163
HUDDERSFIELD	134
HULL	119
IMMINGHAM	93
IRELAND	186
KEIGHLEY	137
LEEDS	125
LEICESTER	41
LINCOLN	71
LIVERPOOL	175
LONDON	23
LOUGHBOROUGH	46
LOCOMOTIVES, G.C.R.	221
LUTTERWORTH	39
MANCHESTER	145
NEWTON	161
NORTH EASTERN DISTRICT	140
NOTTINGHAM	47
OLDHAM	159
RETFORD	69
ROTHERHAM	67
RUGBY	38
SCOTLAND	142
SHEFFIELD	53
SITES FOR WORKS	236
STALYBRIDGE	156
ST. HELEN'S	168
STOCKPORT	164
WAKEFIELD	124
WARRINGTON	169
WATH CONCENTRATION SIDINGS	205
WIGAN	165
WIDNES	172
WOOL SALES	234
WREXHAM	173

List of Great Central Company's District Goods Offices, page 238.



"PER RAIL" in action

Per Rail

PER RAIL! Easily written: easily said. Easily, some perhaps might add, understood. Its significance is so obvious, so simple. *Per Rail!* All that is needful is to scratch it with a pen above the address on the parcel, or (simpler still) moisten a gummed label which already bears the printed legend, and stick it on the side. The man will call and take the parcel away, and to-morrow or the day after you will receive an acknowledgment of its safe delivery. *Voila tout!*

But is that all? All, certainly, that ordinarily meets the eye—that concerns Mr. Jones or Mr. Brown. Their share in the business is soon done. It matters not what the articles may be which they are despatching north, south, east, west. A box of biscuits, perchance; or the steel ram of a battleship—'tis all the same. A few strokes of the pen, or a couple of bold-lettered labels, suffice to imprint upon it the pregnant message. *Per Rail!* 'Tis done in a moment—and there's an end on't. Secure in the knowledge that the parcel he carelessly consigns to the railway van at his door will in due course—and that right speedily—arrive at the destination decreed by its superscription, Mr. Brown takes his hat and goes out to lunch without another thought of the matter.

But 'tis one thing to command, another to obey. That terse behest -*Per Rail*—so lightly given; in what wise is it carried out? What of the vast organisation which can make possible, even in this modern age of miracles, such wonders of transport that goods almost (as it seems) of their own volition travel from door to door—from appointed place to appointed place, though the twain be leagues asunder—with such ease and expedition that the fanciful might deem biscuit boxes to have taken unto themselves wings, and steel rams to have pulled on seven-league boots?

It is but little thought that the busy man of commerce gives to the manner in which his wares and commodities are daily transported hither and thither, across and across the network of shining metal ways which overlies the country. Even the man of more leisure, whose interest and admiration are aroused by the absorbing spectacle of railway development and management, is apt to forget that important but unostentatious branch of the transport service which is described by the prosaic words "Goods Traffic." Railways stand for travel; but it is easy to forget, in the fascinating study of the many inventions which restless man has sought out to overcome his own physical limitations, that transport is needed for things as well as persons.

To the ignorant or unintelligent mind, such a phrase as "The Romance of Goods Traffic" seems a mere contradiction in terms. The carrying of wares from place to place seems as dull and unromantic a business as can well be imagined. But to the discerning mind true romance underlies things that seem most commonplace. Had but McAndrews, that dour Scotch engineer of Kipling's creation, been foreman in a railway depôt, instead of "chief" in the engine-room of a liner, we might have had an epic of goods traffic, instead of machinery, which would mightily astonish Mr. Jones and Mr. Brown.

We stand, let us suppose, within a goods depôt at a principal station. The hour is between eight and nine in the evening, and all around is the turmoil and bustle which precedes the departure of the outward-bound goods trains.

A scene, to the lay observer who views it for the first time, of wild disorder and confusion. The vast area of the depôt, over which, rising tier upon tier, floor upon floor, the huge warehouse impends, is brightly illuminated by the glare of great electric arc lamps. Long platforms, piled high with miscellaneous packages and goods, traverse it from end to end, and between these are alternately the lines of rails upon which the trucks are run alongside, and the roadways into which the horsed or motor vans are driven to be backed up and unloaded.

At every platform a long train of trucks, some open with a lowered flap, others covered, but with doors flung wide, is drawn up. Men, busy as ants, are running ceaselessly to and fro with goods of every description, the rumble of their trolley wheels upon the stage filling the air with a rattling din that yet cannot drown the sharp incessant shrieks from the warning whistles of the shunters.

At the far end of the depôt the lines vanish through black arches into the darkness of the night. Beyond in the dusky gloom of the goods yard, partly lit by the powerful rays of lofty lamps, more men — blurred, indistinct figures, whistling shrilly ever and anon — are busily shunting other ponderous trucks to and fro, spinning them round upon circular turn-tables, hauling them this way and that with stout warps coiled round rumbling capstans, and sending them, with a single push as it seems, sliding off in the required direction along different sets of rails. Stumpy little tank engines, snorting importantly, puff hither and thither in obedience to waving lanterns, pushing and pulling the long shadowy lines of trucks, arranging and re-arranging them with ingenuity almost bewildering.

SHUNTING ENGINE.

Inside, it is some time before the ear can grow accustomed to the din, or the eye perceive the perfect order which prevails throughout the seeming chaos. We spoke just now of the swarms of men running to and fro "busy as ants"; and the simile of the ant-heap is not inapt. Nowhere is seen a spectacle of greater confusion and seeming chaos than amongst the scurrying inhabitants of a disturbed ant-heap: some running this way, some that; some bearing huge burdens, others going empty-handed or helping. The analogy with the scene before us in the goods depôt here may seem a trifle strained, perhaps, but it is almost complete. For if close observers are to be believed, each member of this ant-community, apparently so purposeless and panic-stricken in his haste, has yet some definite object in view; and we, on our part, as we become inured to the rattle and the row of the myriad trolleys, and are able to observe and take in all that is going on, perceive that there is not only method in the seeming madness and tumult that fills the great depôt, but perfect order and organisation. Each man has his job. He knows what to do—and does it. No questions are asked, no trouble or delay ensues. When the first train, with a few slow snorts, winds its sinuous length out of the Goods Yard, the astonished observer, who was beginning to wonder what the upshot of all this hurry and confusion would be, asks himself how, when, and where the long procession of trucks was got together and packed. Later he discovers that it has all been done before his very eyes.

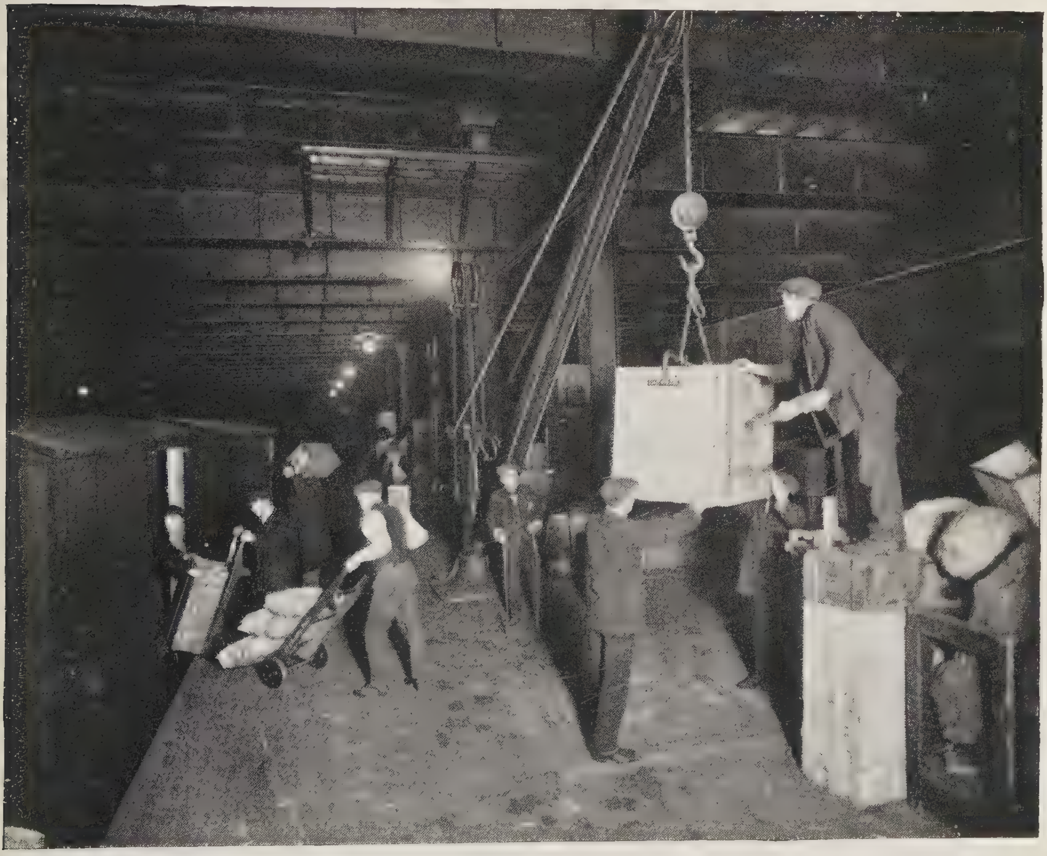
Watch this heavily loaded dray that comes swinging into the depôt at a good round trot. The horses are pulled up smartly, and the driver, hanging up the reins, leaps to the ground. From his pocket he pulls out consignment notes which contain a description of the goods upon his lorry. A foreman is already upon the platform edge waiting to receive the notes, and as he takes them he tells the driver at what point to back up his charge.

Whilst the van is being manœuvred into position, consignment notes are glanced over and handed to a checker, who at once proceeds with his gang to where the van is placed against the platform edge, and the process of unloading commences. As the various packages are lifted off the van the name and address, or distinguishing mark, is called out; the checker compares this with the consignment note which he holds, and the packages are placed upon the weighing machine, weight noted, and wheeled away without delay up this platform, down that, to be placed before the truck into which they are eventually to be loaded. Each truck has chalked upon its doors or side the name of the station which is its ultimate destination, and the gangmen know well in what part of the depôt each particular truck is situated.

ONE OF MANY.

At the trucks the goods are received by the loaders and their gangs, who deposit them with due care, and also with regard to economy of space, within. For purposes of reference, in case of need, the loader also enters upon a slip particulars of the contents of each truck, and this is carefully preserved in the goods traffic offices.

It is difficult to pen a picture of the extraordinary scene which the goods depôt presents while the trains are in process of being loaded. To catalogue all the articles which are stacked on every side awaiting transport is impossible. Their number is legion, their variety endless. Here is a great pile of mysterious bales, neatly enveloped in coarse sacking, and marked with strange hieroglyphics; there, heaped up by the score, huge bundles of leather. In



WEIGHING AND LOADING GOODS

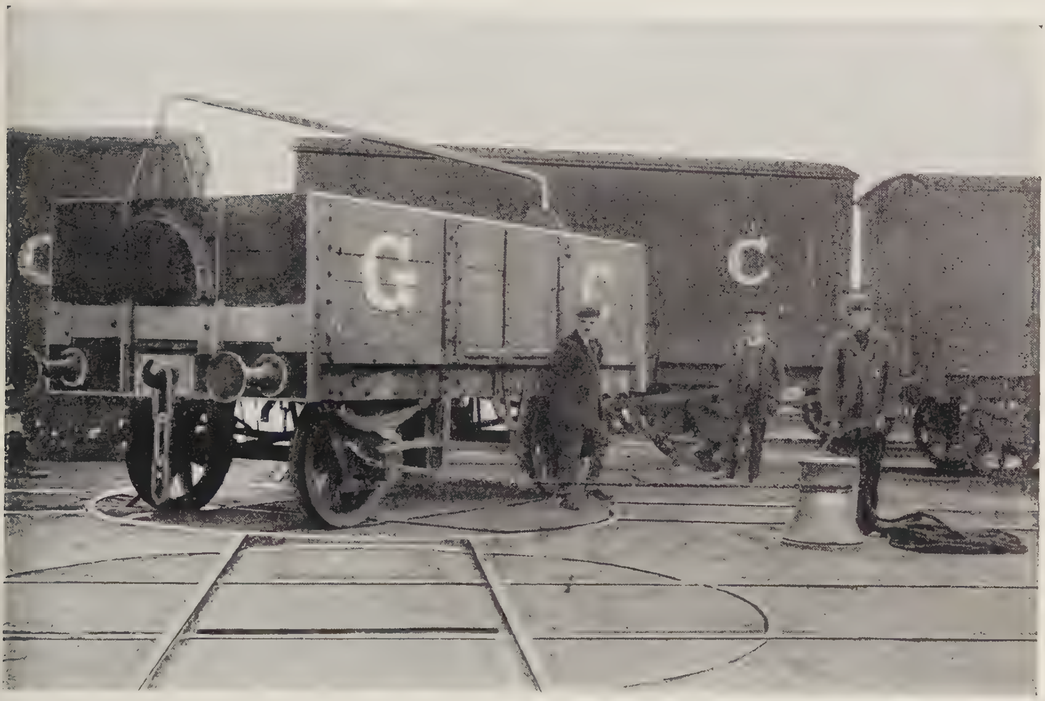
one corner, perhaps, a stack of metal tanks and cisterns. Barrels, crates, packing cases, and baskets stand in serried rows, while cumbrous pieces of furniture—pianos, overmantels, chairs, and the like—hedged round with protecting frameworks of wood, block the passage at every step.

Weighing machines are dotted along every platform, and beside these are the little desks, or rostrums, at which the checkers do their work. Heavy cranes, too, thrust out their arms at frequent intervals, some picking up weighty goods, maybe, from the motor lorries which have brought them in, and swinging them on to the trucks into the arms of the loading gangs.

THE SHUNTER.

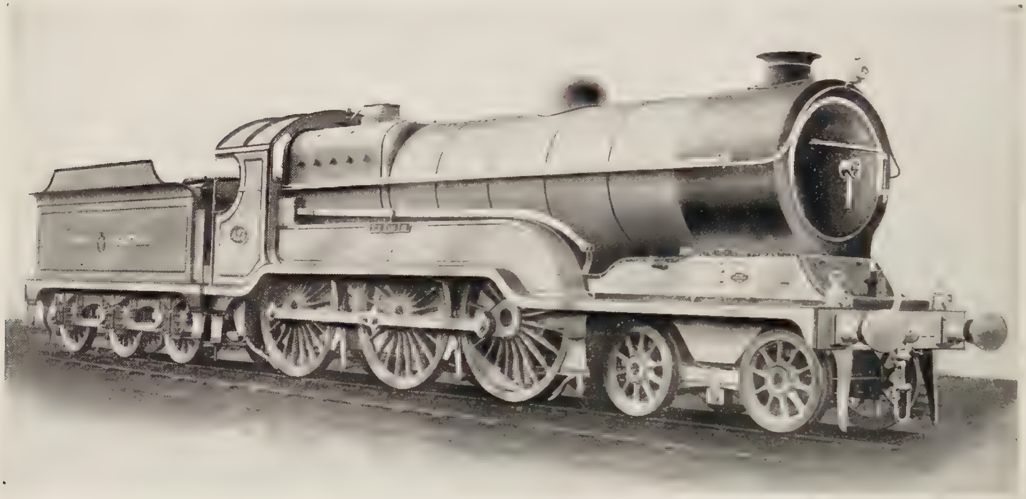
But when the last van and the last lorry have rumbled into the depôt and discharged their loads, when the last package has been checked and put away in its proper place, there still remains much to be done. The night express goods train, say, is to be marshalled and despatched. But at present it can hardly be said to be in existence. It is dismembered, as it were, and the various trucks and sections which should form its component parts are in different parts of the depôt—some on one road, some on another, from which it seems to the lay mind impossible that they should be extracted. And not only must all these component parts be brought together, but they must be arranged in a certain order—"marshalled" is the technical term—the truck which will be dropped first being placed next to the engine, and so on all the way down its length until the guard's brake van—at present waiting in the gloom outside—is reached at the tail end.

The uninstructed observer votes the case a hopeless one. But he reckons without that ingenious individual, the Shunter, and the latter's still more ingenious contrivance, the "traverser," a kind of low cradle, up on to which (as it lies upon the metal road) a truck may be run. The "traverser" can then be worked cross-wise from one road to another, its load discharged, and another truck lifted and whisked away. The heavy trucks themselves are hauled to and fro by means of stout warps coiled round revolving capstans, worked by the same motive power (hydraulic) as the "traverser."



CAPSTAN SHUNTER AT WORK.

To watch the shunters at work is like looking on at some game of draughts upon a huge scale, or—closer analogy still—one of those ingenious puzzles in which a number of cubes are laid in a jumble upon a board, with a single vacant space amongst them, and have to be shifted to and fro, *but not lifted*, until a certain pattern or order is produced.



EXPRESS GOODS ENGINE.

IN CHARGE OF THE TRAIN.

The various sections of the train having been made up, it remains only for the shunters inside the depôt to send them gliding into the yard outside, and then haul in other empty ones to take their places and receive the goods waiting for the next train.

The train still lacks completion, but the task now devolves upon the staff outside. The waiting goods engine, looming monstrous and powerful in the dim light, backs gently down upon the section which contains the trucks that will need to be dropped first. The coupling is speedily done; and, with these in tow, the great monster steams slowly away round the bend and out of sight. It is not gone, however. A rattling clang tells of points being shifted, and back steams the engine with its short train, but upon a different road, to pick up a second section there waiting for it. Then out again and back again, out once more and back once more, till finally the last section, with the brake-van bringing up the rear, has

WHERE THE PEN IS EVER BUSY.

1,—GREAT CENTRAL EXPRESS FISH TRAIN.

2.—SCENE ON FISH QUAY, GRIMSBY DOCKS.

A GOODS INSPECTOR.

been attached, and the complete train, 200 yards and more in length, awaits but the signal to depart. A moment's pause, a flash of the lamp, a short whistle, and the night express goods train glides, snake-like, forth upon its journey.

No whit less interesting is the spectacle which the depôt presents in the early morning. Then it is that the "inward" goods traffic arrives, and instead of the busy loading scene is witnessed the expeditious skill with which the trains are unloaded, and the goods sorted and spirited away all over the city or town by vans, drays, and lorries.

GOODS CAREFULLY LOADED FOR DELIVERY.

Again a triumph of organisation. The first move lies with the clerical offices:

Here the invoices referring to the goods upon an incoming train have been collected and sorted. All the various items have been ticked off and assigned to their respective areas of delivery, and the invoices handed over to the foreman. The latter, when the time arrives, distributes these amongst the different checkers who, with their gangs, superintend the unloading of each truck.

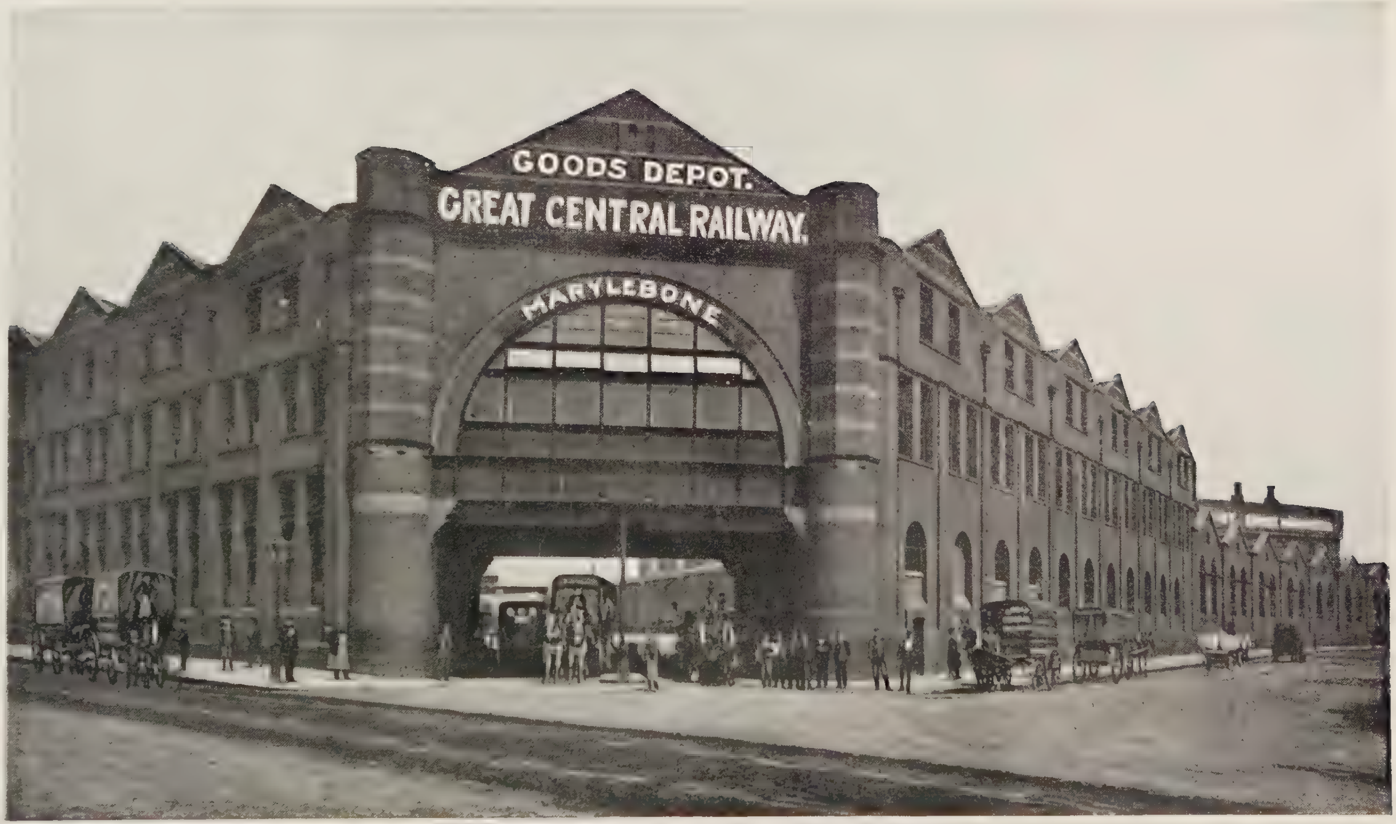
As parcel after parcel is handed out, the "caller-off" glances at the superscription (or, failing any definite address, the distinguishing marks with which each parcel is branded), and shouts it aloud. "Jones, Oxford Street," we will assume, is the cry. The checker glances over his list and checks the entry. If any damage has been sustained by the goods in question, a note is promptly made of its nature and extent. This done, he calls out (we will again assume), "No. 6."

This latter remark has reference to the "stations" which have been marked out along the platform, each being the dumping ground for goods destined for a particular area of delivery. At the word, a trucker seizes the package, and in a trice it is wheeled away to the appointed place, and there deposited. Should the checker call "O.B." (*i.e.*, Office Book) or "Rails," the goods are taken to yet other stations, to await storage in the warehouse (in the first case) or transference to the depôt of some foreign system (in the second case).

At each station is a loading-up checker and his gang. These receive the wheeled-up goods, and place them on the waiting vans and drays. The loading-up checker is provided, in his turn, with a delivery sheet made up in the office, and by means of this is able to ensure the due despatch of all goods, and likewise prevent any package from going astray or being left behind. His task of loading is not so simple as it seems, and requires knowledge of the special district dealt with almost as "extensive and peculiar" as that which was the boast of Mr. Sam Weller. The reason for this is that goods which are to be delivered first must be placed on the cart last (*i.e.*, nearest the tail-board). Consequently the loading-up checker and his men need to know the relative situation of every establishment in every street they deal with. More often than not, the address gives the street of the consignee, but no number, and if the precise position of the house is not known, it is likely that the goods destined for delivery there may be inconveniently placed in the van, and delay thereby incurred.

The loading-up, notwithstanding, is accomplished with astonishing speed, and in a very short space of time after the arrival of the train, the drays and vans are rattling this way and that, distributing packages innumerable in every part of the Town or City.

Of singular fascination this ordered pageant of work-a-day romance! One recalls, standing in the busy depôt, and watching the busy trains glide in and out bearing the varied commerce of the world, a passage from *Wilhelm Meister*. Werner, the eager merchant, is addressing the hesitating Wilhelm :—"Do but visit one or two great trading towns, one or two seaports, and see if you can withstand the impression. When you observe how many men are busied, whence so many things have come, and whither they are going, you will feel as though you too could gladly mingle in the business. You will then see the smallest piece of ware in its connection with the whole mercantile concern; and for that very reason you will reckon nothing paltry, because everything augments the circulation by which you yourself are supported."



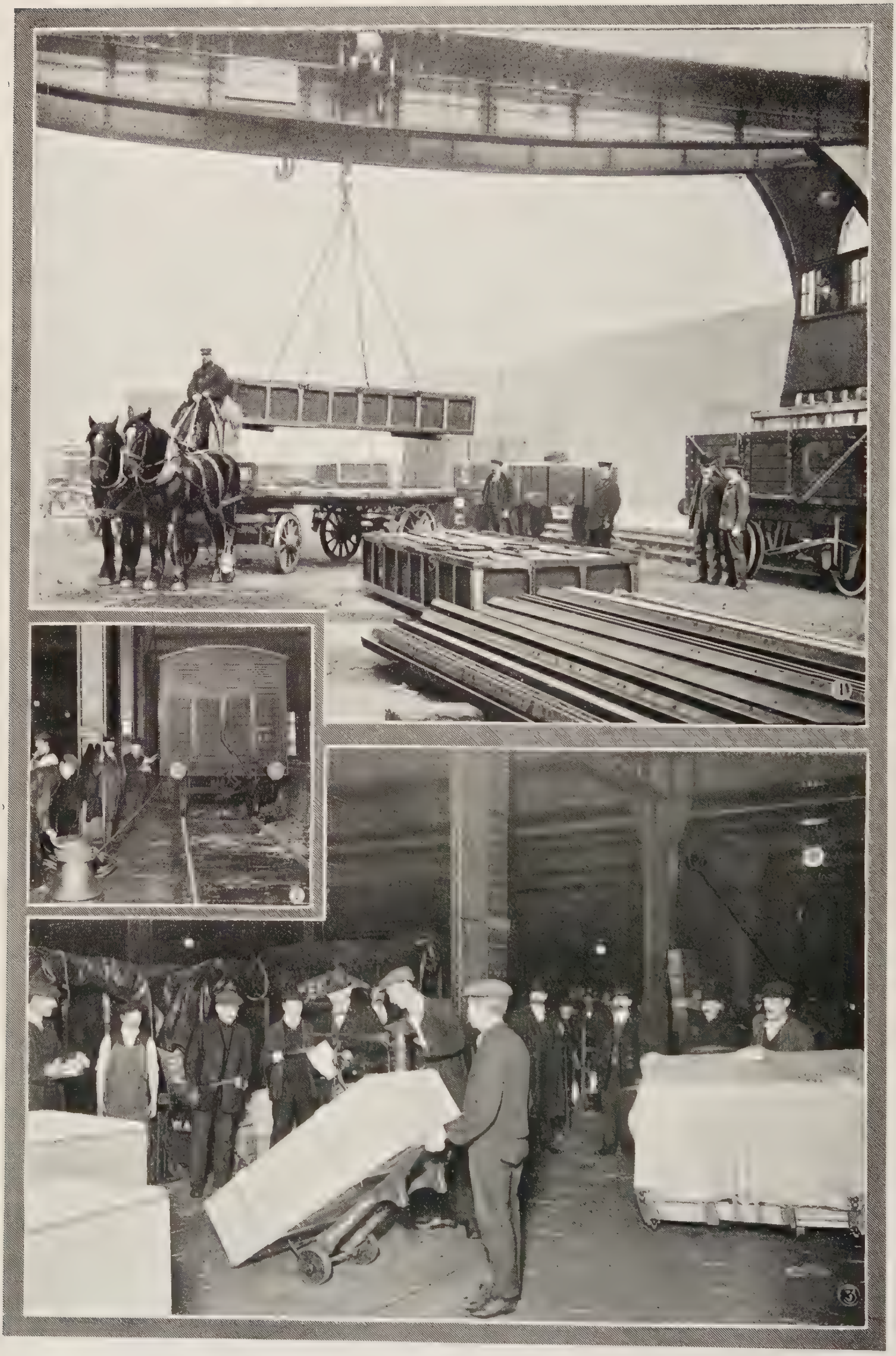
ENTRANCE TO THE MARYLEBONE GOODS DEPOT.

London

The Greatest Commercial Centre of the World

LONDON is the most important centre of the Commercial World. In the year 1801 the population of Greater London was less than a million, and according to the latest returns available it now contains, with its outlying areas, seven and a quarter millions of people. The value of its Imports and Exports holds the premier position in the world's commerce. In the extent of its rail and shipping facilities it also holds first place in the field of transportation, and most of the Trunk Lines of England have their termini in London, the latest of the Railway Companies to obtain this advantage being the Great Central, with the result that the Company to-day at their London Terminus have the finest railway goods warehouse in London, with exceptional facilities for the handling and storing of all descriptions of traffic.

London possesses Exchanges for Coal, Wool, Corn, Timber, Leather, and various kinds of produce, and in addition to their Central Depôt at Marylebone the Company have provided, for the convenience of traders, Goods Depôts



SCENES IN MARYLEBONE GOODS YARD AND WAREHOUSE:—

1.—Unloading Empty Fish Tanks from Goods Dray.

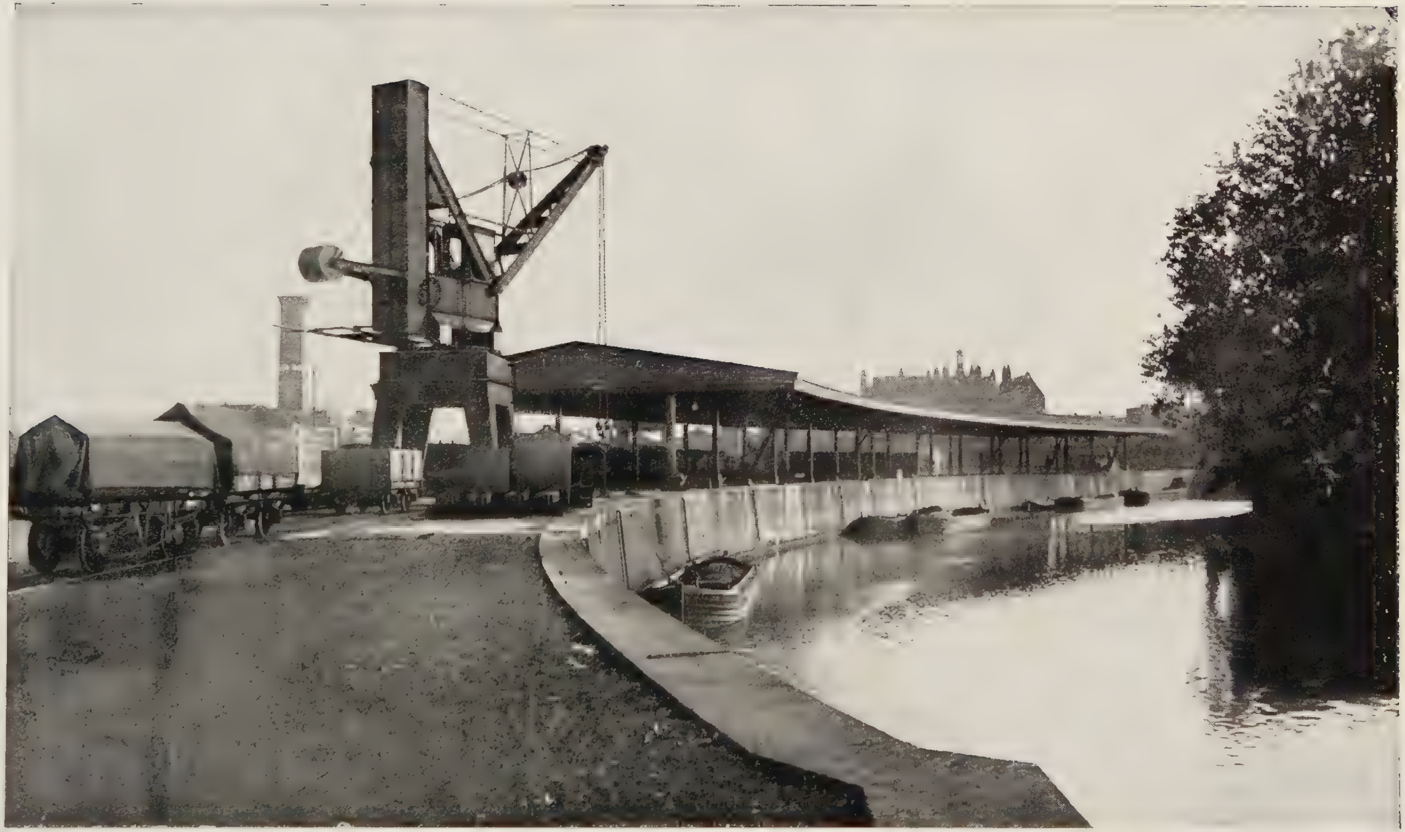
2.—Capstan Shunter Bringing Van into Position for Loading.

3.—Goods are Carefully Weighed.

or Sub-Stations in various parts of London, at which goods are received for dispatch, so saving the trader the trouble and expense of carting his packages to the terminus at Marylebone. By this means the Company have practically brought their Station to the door of the trader. In addition to this facility the Company have established Offices in the commercial areas, at which enquiries are promptly answered, and orders received for the dispatch of goods. The Company's facilities for cartage, by means of well-equipped Motor Lorries and Drays, and their organisation for collections and deliveries enables traffic to be readily dealt with in accordance with traders' requirements.

A FISH TRUCK.

The Company, who control the premier fishing port of the world, have not lost sight of the facilities required for the quick dispatch of Fish to London. Billingsgate, the great fish emporium for the Metropolis, receives its vast supplies from Grimsby, and the Company, realizing the importance of fish as a food for London's populace, by their perfect organisation bring the fish at express speed direct



REGENT'S CANAL WHARF AND MAMMOTH CRANE.

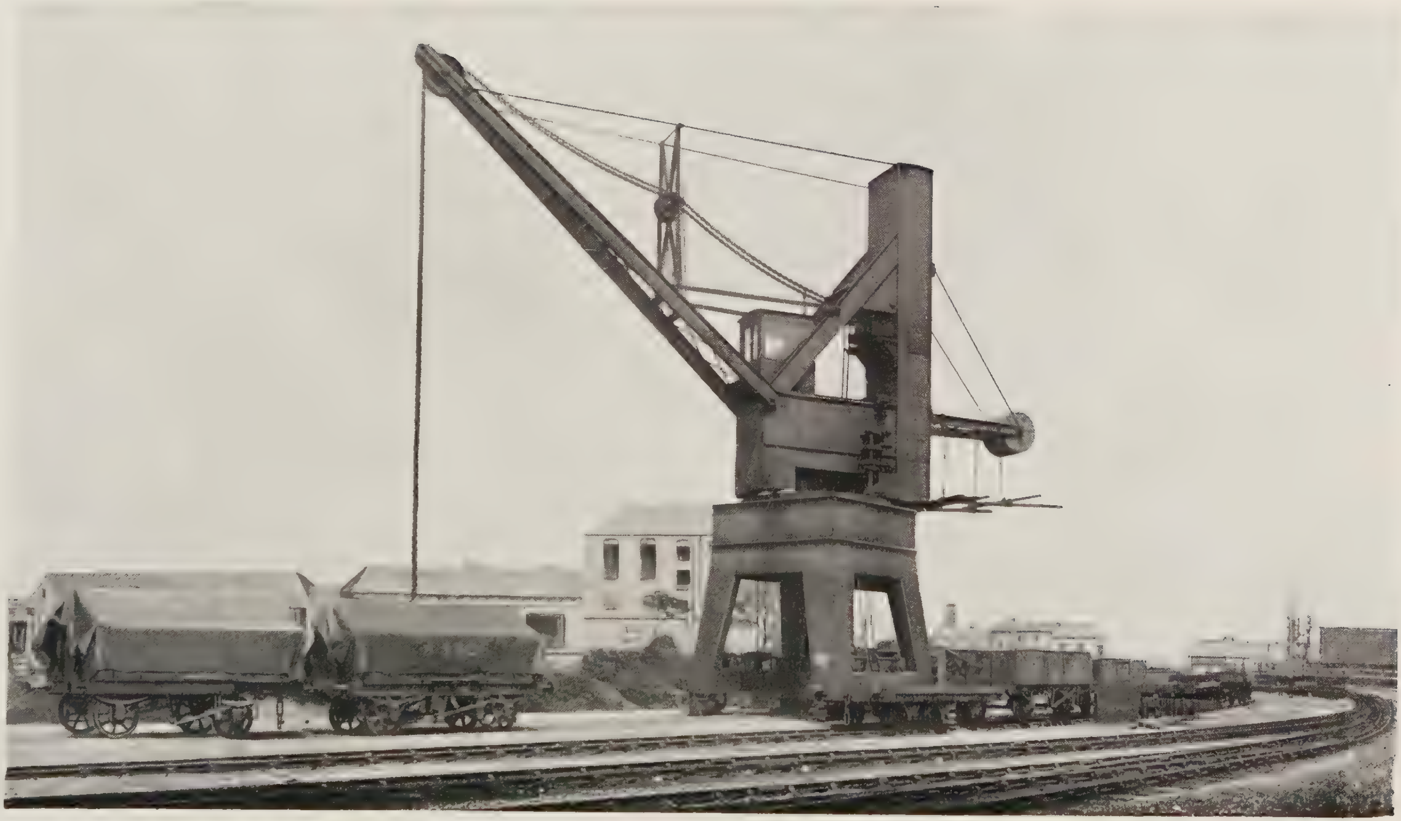
from the sea at Grimsby in huge tanks loaded in specially constructed trucks, and even on its arrival at Billingsgate Market it is practically alive.

But goods which are to be, or have been, transported "per rail" are not always taken to and from the depôt by road. It happens often that goods of great bulk have to be conveyed to and from the Docks. It is then that the advantages of a waterway are readily seen. At Marylebone the Great Central Railway Company has built alongside the Regent's Canal, specially widened at this point for the purpose of the traffic from the railway, a splendid covered wharf, equipped with hydraulic cranes, and all the appliances necessary for the speedy transhipment of goods from truck to barge, and *vice versa.*

Here, on the verge, overhanging the side, stands a mammoth crane—massive, monstrous—which has a lifting capacity of 25 tons, while all down the length of the wharf are ranged smaller cranes for use in raising and lowering the lesser articles of merchandise.

Below, on the still surface of the canal, lie huge lighters, moored to the high wall of the wharf, ready to glide off, once their capacious holds have received the necessary load, threading their way through London's maze until they reach the Limehouse basin, and so drop down into the broad Thames, to be carried by the tide up or down, as the case may be, to the wharves or to the docks where lie the steamers that await them. In this way, ship's cargo can be collected or delivered directly from or to the vessel, and much time, trouble, and expense thereby saved. By the same route, also, are bulky goods carried to all Thames-side premises, and to Woolwich Arsenal.

But in the matter of goods traffic the functions of a railway company, it must be recollected, are not confined



TWENTY-FIVE TON CRANE AT MARYLEBONE.

to the mere carrying to and fro. In the vast goods warehouse at Marylebone are stored immense quantities of all kinds of merchandise, lying there in safety until orders are received from the owners for transport to the desired destination.

To the lay visitor the warehouse is perhaps the most staggering feature of the whole Marylebone depôt. The size of the place, for instance! For its length is 384 feet, and its width 255 feet. Possibly these bare figures convey only a vague impression. But if it be remarked that such dimensions give a storage area of two acres on each floor of the warehouse, some idea of the vast accommodation provided may be formed.

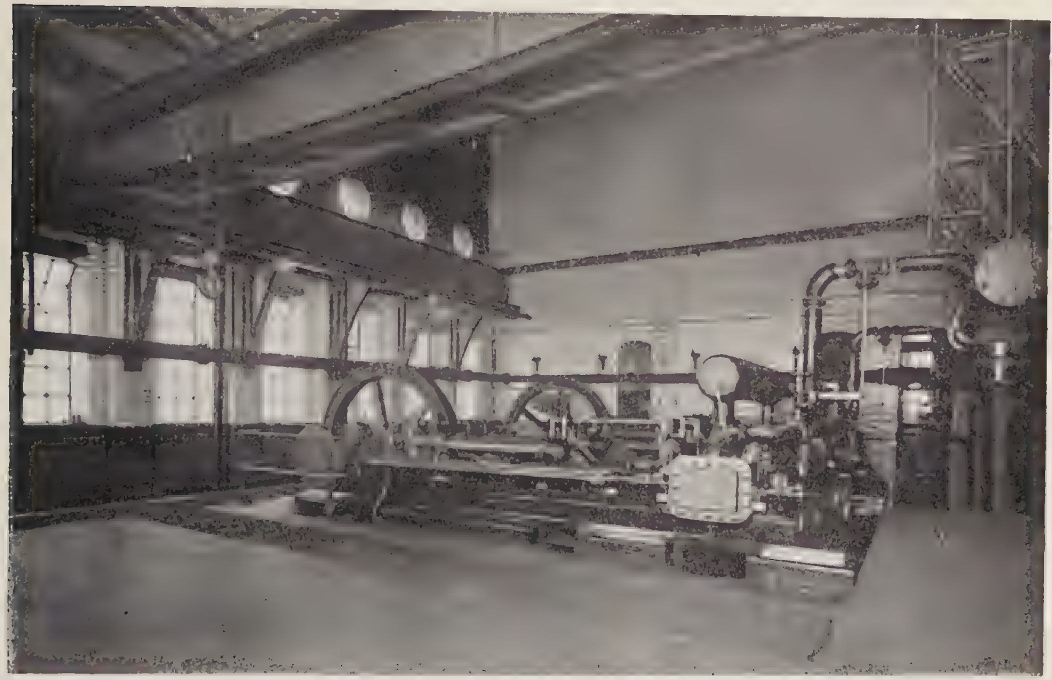
MARYLEBONE GOODS WAREHOUSE.

A tour of this huge edifice of brick and steel is of rare fascination. The ground floor, as has already been explained, forms the goods depôt, or station, where the trains are received and despatched. Above this are three floors, lighted by means of nine shafts—three rows of three—which pierce the building from roof to floor. That is to say, each floor has nine wells through which the goods destined for storage upon it are hoisted aloft by the overhanging

ELECTRICAL POWER STATION AT MARYLEBONE.

hydraulic cranes. In addition, there is a basement of equivalent size, filled from wall to wall with giant crates, neatly arranged in ordered rows, with aisles between, some thousands in all.

The top floor is given up almost entirely to glass. Here are ranged endless rows upon rows of slender, straw-stuffed crates, containing glass in sheets of different qualities. They belong to many makers, and one might think a confused jumble were bound to result from the miscellaneous storage of so much. Each crate, however, not only bears its distinguishing marks, but is stored in its own particular place; and so carefully is each registered in the offices below, that this crate or that is sent off without a moment's delay, when advice from the owner is received.



HYDRAULIC SECTION OF POWER STATION AT MARYLEBONE.

FROM TRUCK TO SACK.

On the floor below are stacked in mounds great canvas covered bales of Wool, ready to be forwarded to Bradford, Halifax, Huddersfield, Leeds, and all parts of the West Riding of Yorkshire, for conversion into fabrics of every kind. For this is wool in the raw state – the fleece as sheared from the sheep, straight from Australia and New Zealand —and in many places, dark stains upon the floor, where bales have recently stood, bear testimony to the natural oil in which some kinds of wool are rich.

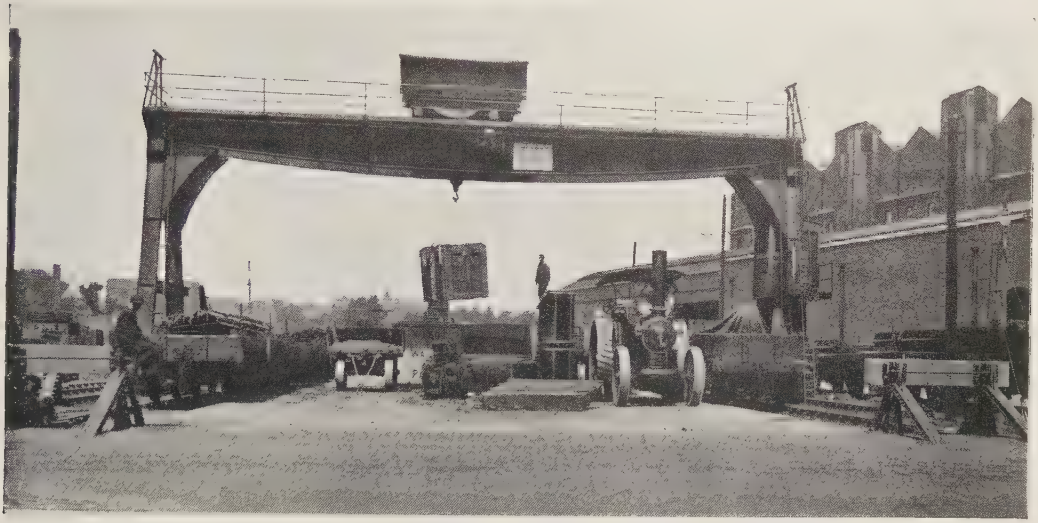
The floor immediately above the depôt is devoted to general goods, and of these it would be impossible to give a category. There is *everything* here, one might almost say—hardly an article of ordinary commerce that is not to be seen in some part of the immense area, neatly stacked and awaiting further orders.

UNLOADING TRUCKS IN THE COAL YARD.

From the warehouse one steps in to the surrounding goods yard.

But of the equipment of this it is quite impossible to convey any adequate notion in words. The canal wharf has already been alluded to, but there must be mentioned, as well, the immense electric Goliath crane, with a lifting capacity of 35 tons; the Hydraulic and Electric Power House, with its lofty stack; the Carriage Shed; the Oil-Gas Works; and the Coal Yard.

The last-named deserves a few special words. It lies upon the other side of Grove Road (which crosses a bridge upon which have been built by the Company several Coal Order Offices, under which the coal trains pass), and has its own entrance in Carlisle Street, giving easy access to the West-end. There are two cartweighing machines at the entrance, and accommodation is provided for about 220 wagons. Here, over a wide-extending open space, are massed the trucks of coal, distributed over a mazy system of roads and sidings by hydraulic shunting, intersected by channels through which the carts to be loaded thread their way. Vast mounds and ramparts of coal in



ELECTRIC GOLIATH CRANE AT MARYLEBONE—LIFTING CAPACITY, 35 TONS.

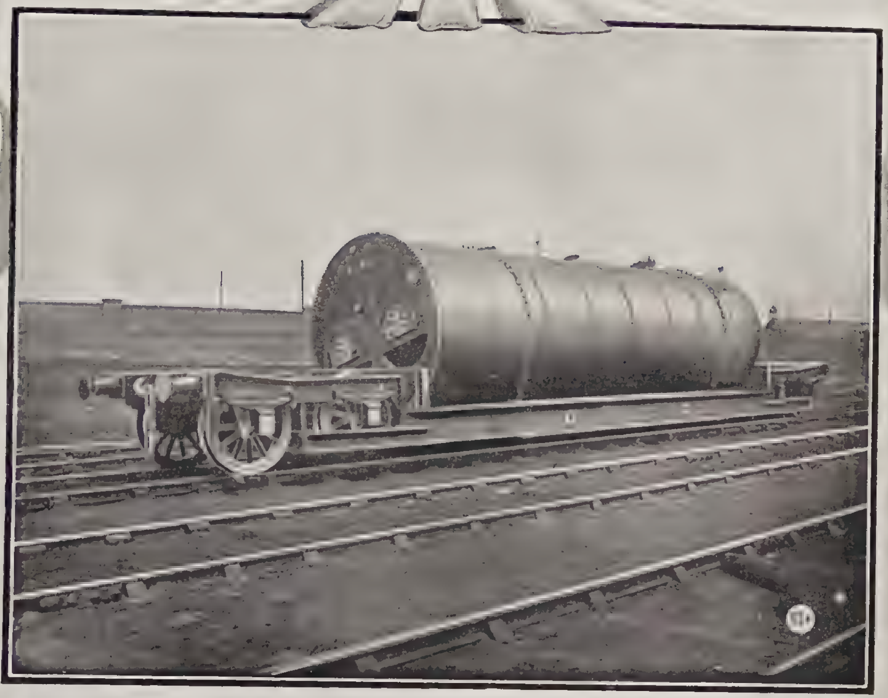
monstrous lumps—black boulders, huge and shiny—are heaped up here and there: treasure trove from the bowels of the earth.

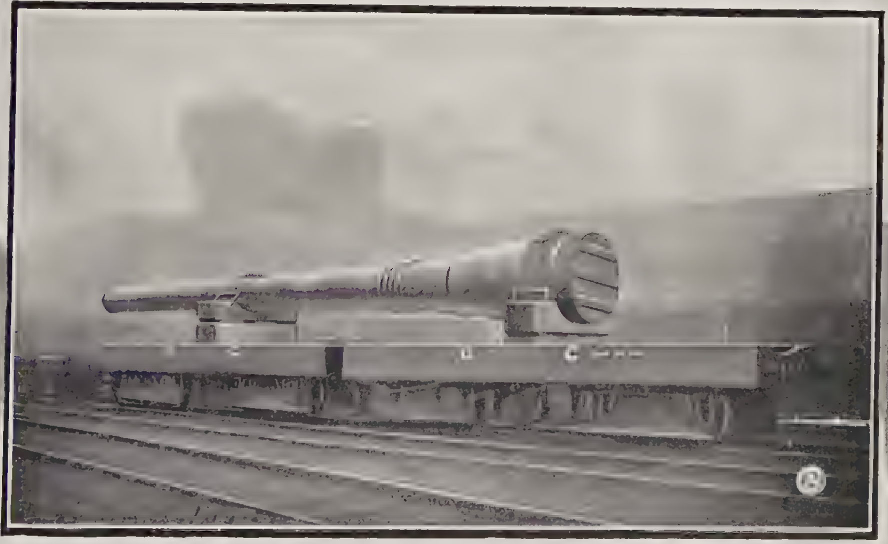
The little offices of the various Coal Companies are ranged down the far wall, and all day the gangs of coal-heavers—girt, brawny men, grimy of face, but light of heart, who sing and jest, one with another, as they toil, are at work, shovelling the freight of the trucks, filling the stiff, coarse sacks, and loading up the familiar carts. Beneath the arches in the wall facing the offices other men, in dark little dens that reek with the pregnant odour of pitch, are busy, like goblins, with their cauldrons, tarring new bags or recoating patched ones.

A coal tip is also provided at Marylebone on the Regent's Canal, thus giving an access to the various works situate not only on the Regent's Canal, but to the River Thames and the Grand Junction Canal, the Lea and Limehouse Cuts, &c. The tip is worked by hydraulic power, and capable of dealing with 800 tons per day.

Wonderfully interesting is the Coal Yard, and capital company, to the stranger who can appreciate quaint types, the "coalies," who labour in it. A network of rails covers the vast area, and all day long may be heard the noise of the shunters at work as, with the aid of the hydraulic capstans, they haul this way and that the cumbrous trucks and vans, or spin them round upon the turn-tables, and shift them easily from road to road.

Very interesting, too, are the various types of rolling stock to be seen scattered about the goods yard. Here are grim steel vans for the dangerous transport of explosives, there low, massive trucks which carry huge boilers, great masses of machinery, or tremendous sheets of armour-plating. Close by are refrigerator vans for the preservation





1.—BOILER LOADED ON WELL TRUCK.
2.—HEAVY GUN READY FOR DESTINATION.

of meat, and squat fish tanks. Over by the coal yard are the mineral wagons, including such monsters, maybe, as the 40-ton trucks for locomotive coal. Immense tree-trunks, lopped and bare, or huge baulks of sawn timber repose ponderously upon special timber wagons, while close by is a string of white-washed cattle trucks, and, perchance, some snug horse boxes. "A place for everything and everything in its place" is an old motto. "A truck for everything and everything in its truck" seems, as one wanders round the goods yard at Marylebone, to have been the ideal of the Great Central Company.

The special arrangements and facilities offered by the Great Central Railway Company for dealing with goods traffic in

LONDON

may therefore be summarised as follows:-

Goods Station.—Marylebone (entrances in Lisson Grove and Rossmore Road, N.W.) Fully equipped with all modern appliances for the expeditious handling of all kinds of merchandise traffic.

Warehouses.—Large Fireproof Warehouse, Marylebone, of three storeys and an excellent concreted basement. Special accommodation, ensuring rapid delivery, for fruit, fish, and other perishable traffic. Large warehouses also at 58, Farringdon Road, E.C.; 26, Aldersgate Street, E.C.; Locksley Street, Limehouse, E.; where traffic is received for storage, or forwarding to all parts of the Great Central Railway system and its connections.

Regent's Canal.—Covered wharf adjoining goods station, equipped with hydraulic cranes, enabling a speedy transfer of traffic by barge to and from the various London Docks, Woolwich dockyard, wharves, and premises on the Regent's Canal and River Thames.

Coal Depôt.—Marylebone. Entrance from Carlisle Street, N.W.

Lighterage Agents.—Messrs. Vokins and Co., Ltd., Mark Lane Chambers, 37 and 38, Mark Lane, E.C.

Cartage Agents.—Messrs. Thompson, McKay and Co., Ltd. Orders or inquiries in regard to the collection, delivery, or forwarding of goods may be made at their office:—

17, St. Paul's Churchyard, E.C., or at
Marylebone Goods Station.

Orders may also be given in and received at any of the Company's depôts for goods and parcels.

Arrangements have been made enabling the Company to collect and deliver merchandise outside the Metropolitan free delivery boundary, and a frequent service is in operation for parcels throughout London and suburbs.

The London "Per Rail" Supplement, containing a list of Offices in London at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to London, can be obtained free on application to the London District Goods Manager, Marylebone Goods Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

RUGBY.

RUGBY is a rising market town with a population of 21,000, and is situated on the Great Central Main Line between Brackley and Lutterworth in the centre of a rich agricultural district. Amongst the chief industries are important electrical engineering, brick, tile and cement works; hosiery and cigar factories; and the commercial prosperity of this town is advancing by leaps and bounds. Rugby has always been famous as an educational centre, and its school which was founded in the sixteenth century was the scene of the popular book "Tom Brown's Schooldays." It is rather the exception than the rule for a centre of learning to make such commercial strides as Rugby has done, but this is no doubt due to the fact that trade has followed the facilities provided for it. Rugby is also a large shire horse breeding centre, and numerous fairs are held for horses, cattle and sheep. It has excellent hunting and polo grounds, and at the Great Central Station a very large number of horses are dealt with annually.

To foster the industrial welfare of Rugby the Great Central Railway Company has provided every arrangement and suitable accommodation for the quick and safe handling of all classes of traffic, and its direct route to all the principal industrial centres in the North, as well as to London and the South and West of England, enables the Company to satisfactorily meet the requirements of traders.

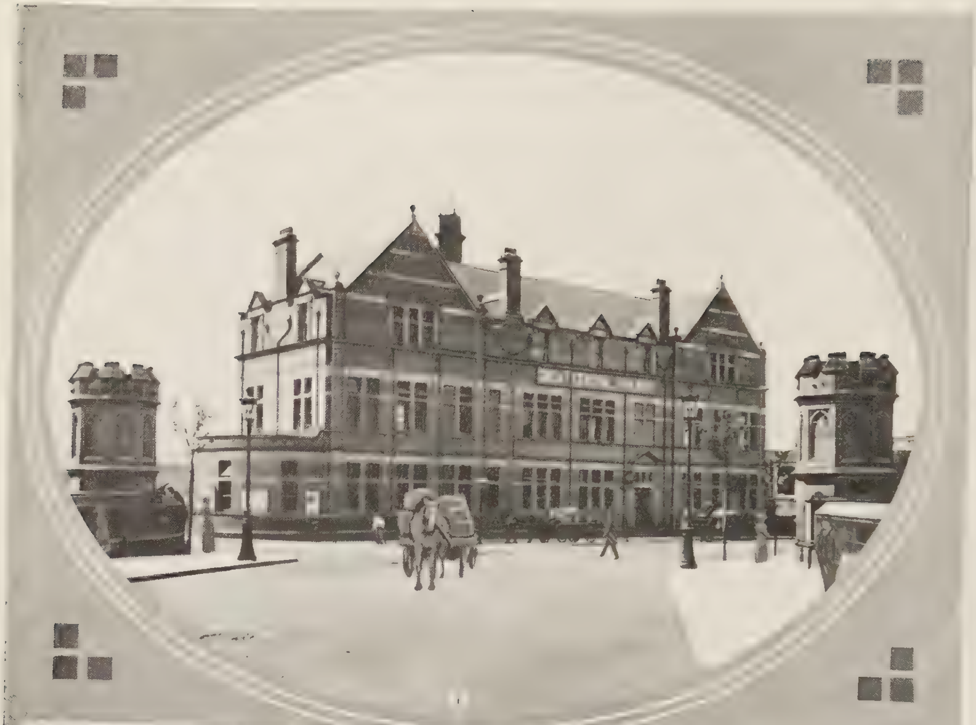
Rugby is linked up with the Continent by means of a direct rail route to the Ports of Grimsby and Immingham, and thence by frequent sailings to the chief ports of the Eastern and Western World.

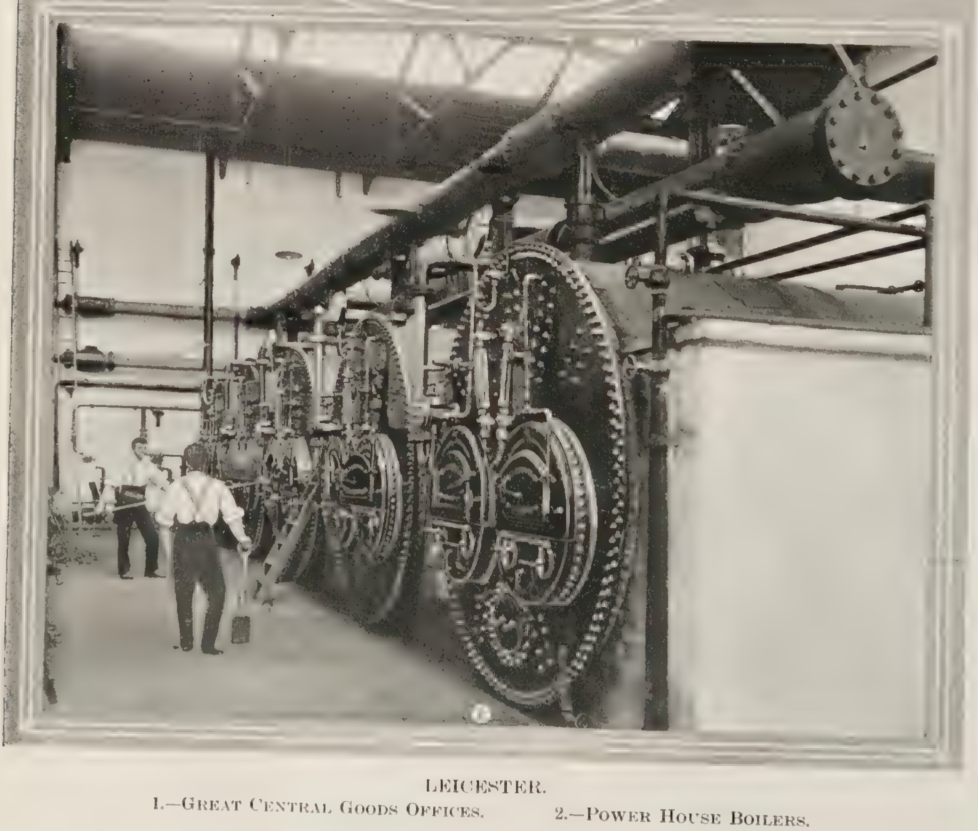
LUTTERWORTH.

LUTTERWORTH is a town which has figured largely in England's history. Commercially, its geographical position makes it an excellent centre for the distribution of manufactured articles and there are great possibilities for firms on the look-out for suitable sites for new works, which can be acquired on advantageous terms; and in addition labour is cheap. There are hosiery factories and malleable iron foundries in the district, and the advent of the Great Central Railway Company's Main Line, which connects Lutterworth with all the important centres in the North and South, has placed Lutterworth in such a good commercial position that there can be little doubt as to its increased prosperity in the immediate future.

The Great Central Railway Company has installed an extensive Goods Yard and Warehouse equipped with every accommodation for expeditiously dealing with all kinds of goods and live stock traffic, and the Company's representative at Lutterworth will be pleased to afford traders any information they may desire in regard to the carriage or storage of their traffic.

AT YOUR SERVICE.





LEICESTER.

1.—Great Central Goods Offices. 2.—Power House Boilers.

Leicester

A Progressive Hive of Industry

MODERN Leicester, with a population of 250,000 and a world-wide commercial reputation, is in its outward aspect one of the most pleasing of our hives of industry. The historian and the archeologist will find much to interest him in a town where, whatever may be the claims of commerce, her sons have in memory a long and honourable history. Roman, Saxon, and Dane have left the traces of their occupation here, and under Norman rule, after a strenuous resistance to the Conqueror, the town became a free borough. Leicester Castle is associated with some of the most stirring events in British history, and the town played a prominent part in the Civil War.

The renaissance of Leicester dates from the beginning of the 17th century. It is true that blankets and cloth had been woven in the district since the 13th century, but it was not until the closing years of the 17th century that hand frame hosiery became an established industry. Here, as elsewhere, the introduction of mechanical appliances was resisted to the point of violent demonstration, and the use of machinery for spinning worsted was postponed for many years, owing to the hostile attitude of the workpeople. It was not until the 19th century that the industrial development of Leicester made real progress, and the modern town is really a product of the Victorian era.

One of the first developments was the employment of steam power for spinning worsted, and the spinning of yarns is now carried on in several large establishments, although owing to the immense variety required for the modern trade, the mills of Yorkshire, Lancashire, Scotland, as well as those of foreign spinners, now assist to supply Leicester manufacturers.

The Town is pre-eminent in the manufacture of hosiery fabrics, and branch establishments of the Leicester factories have been erected in the surrounding districts. In the elastic web trade Leicester holds the supreme position, nine-tenths of the output for the whole of the United Kingdom being produced in the district. No fewer than 300 looms are employed in the manufacture of elastic webs and braids.

The boot and shoe trade, for which the town is a great distributing centre, is a comparatively modern industry in Leicester. To a very large extent boots and shoes for the fair sex are made in the two hundred boot factories now established in the town, and the output has an annual value of about £4,500,000, of which an increasing proportion is finding its way abroad. To Leicester manufacturers belongs much of the credit for the enterprise which met and checked the foreign invasion of this trade a few years ago.

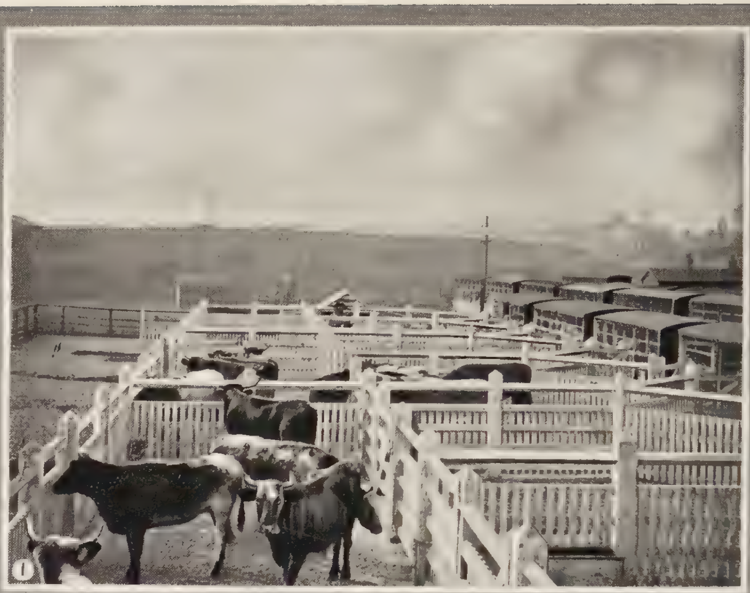
The engineering trades have also made great advances here. Leicester is the centre for the manufacturing of machinery for the boot and shoe trade, and there is also a large output of machinery for the textile industries. The general engineering trades have risen in some branches to a position of international importance. This is particularly true of pumping plant and crane manufacture. Brewing and Malting machinery is also largely produced in Leicester.

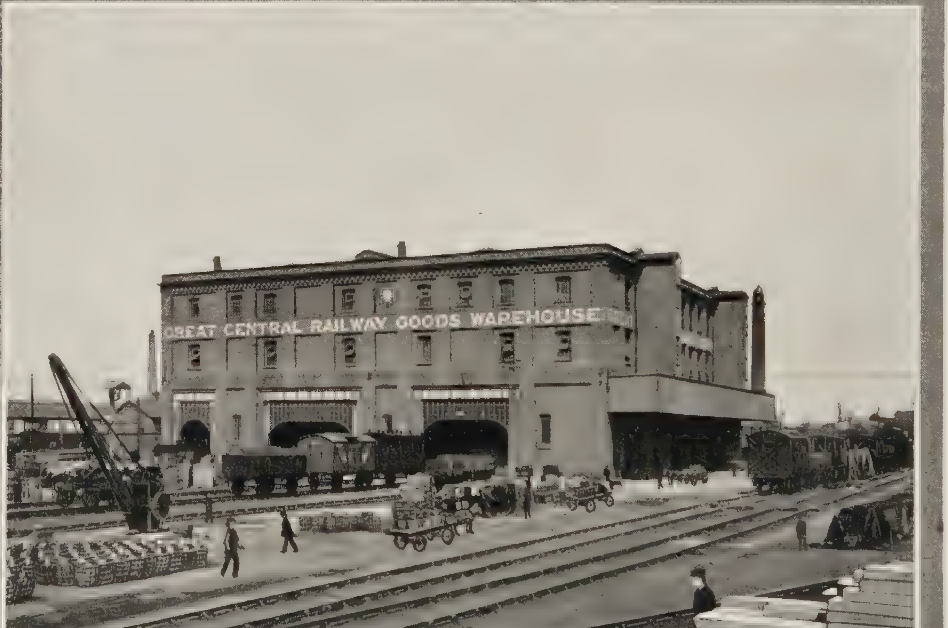
Another industry which is growing in importance is that of heating and ventilating engineering, while scientific instrument construction, and the making of typewriters, are also carried on in some of the newer factories.

When the Great Central Company formulated the great scheme of carrying its line right through the heart of England to link up the great commercial centres of Lancashire and Yorkshire with the Metropolis, Leicester was one of the natural objectives of the new main line. Both the Town and the Railway have been the gainers by the introduction of a new trunk line into Leicester, and her traders would be the first to recognise the advantages which they have derived from the enterprise of the Great Central Company.

The Great Central Railway warehouse at Braunstone Gate is a huge edifice of brick and steel. The ground floor forms the goods depôt. Above this are two floors, lighted by means of shafts which pierce the building from roof to floor, and by electric lamps. That is to say, each floor has wells through which the goods destined for storage upon it are hoisted by the overhanging hydraulic lifts. On these great areas are ranged endless rows of crates and bales and cases—packages of all descriptions—containing not only the materials which are chiefly used in those staple industries of Leicester to which allusion has already been made, but a miscellaneous assortment of almost every conceivable kind of commodity.

And besides this great place of storage at Braunstone Gate, the Company possesses an additional large warehouse





LEICESTER.

1.—Cattle Dock. 2.—Goods Warehouse and Section of Yard.

in Nicholas Street, and also a number of arches in which goods can be stored.

The large area of the Goods yard is necessary, for in addition to the roads which lead directly from the warehouse and depôt to the main line, there are a great number of extensive sidings. Thanks to these, the Great Central Railway has peculiar advantages in dealing with minerals and other heavy traffic, and an electric Goliath crane, with a lifting capacity of 25 tons, is an important item of the depôt.

The Power House is a pronounced feature of the yard. Here machinery is installed for operating the hydraulic cranes, capstans, etc., also for generating current for lighting and for the electric cranes which are provided in the extension to the warehouse.

Every contingency is well provided for. For the accommodation of live stock, for instance, there is a commodious and well arranged cattle dock, which permits of animals being received and despatched not only with promptness, but with every proper care and attention.

And, centrally situated as is the Braunstone Gate station, with three entrances in the Western Boulevard, the Great Central Railway Company has provided a further depôt for the convenience of customers in the more northerly parts of the town. This is at Abbey Lane, where coal, and all traffic not requiring warehouse accommodation, is dealt with on the spot.

The Leicester "Per Rail" Supplement, containing a list of Offices in Leicester at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Leicester, can be obtained free on application to the Goods Agent, Great Central Braunstone Gate Goods Station, Leicester, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

LOUGHBOROUGH.

LOUGHBORO' is a thriving business town of 23,000 population, situated almost midway between Leicester and Nottingham. The chief industries are bell-founding, electrical engineering, the making of hosiery machines, boilers and horticultural buildings, as well as the manufacture of hosiery, elastic-web, dyes and perfumes. The hosiery machines and electrical cranes made in the local factories are sent to all parts of the world, and as the Great Central London Main Line has given an important impetus to trade, the rapid growth and popularity of this midland town must follow as a matter of course.

The requirements of the various traders have been met by the ample accommodation provided by the Company in their warehouse, which is equipped with all the necessary modern appliances for the quick and easy handling of the various goods entrusted to them for conveyance "per rail." Goods are collected and delivered to and from the various works, and can be suitably stored in the warehouse as may be desired by the owner. Live stock traffic receives careful attention and a special "dock" is provided for its accommodation. Horses and carriages can also be dealt with.

Export Goods are dispatched to the Continent by the popular Grimsby route, and articles intended for shipment in London, Liverpool or Southampton are promptly dealt with when entrusted to the Great Central Company for conveyance.

All enquiries addressed to Great Central Railway Company's Agent, Central Station, Loughboro', will be promptly dealt with.

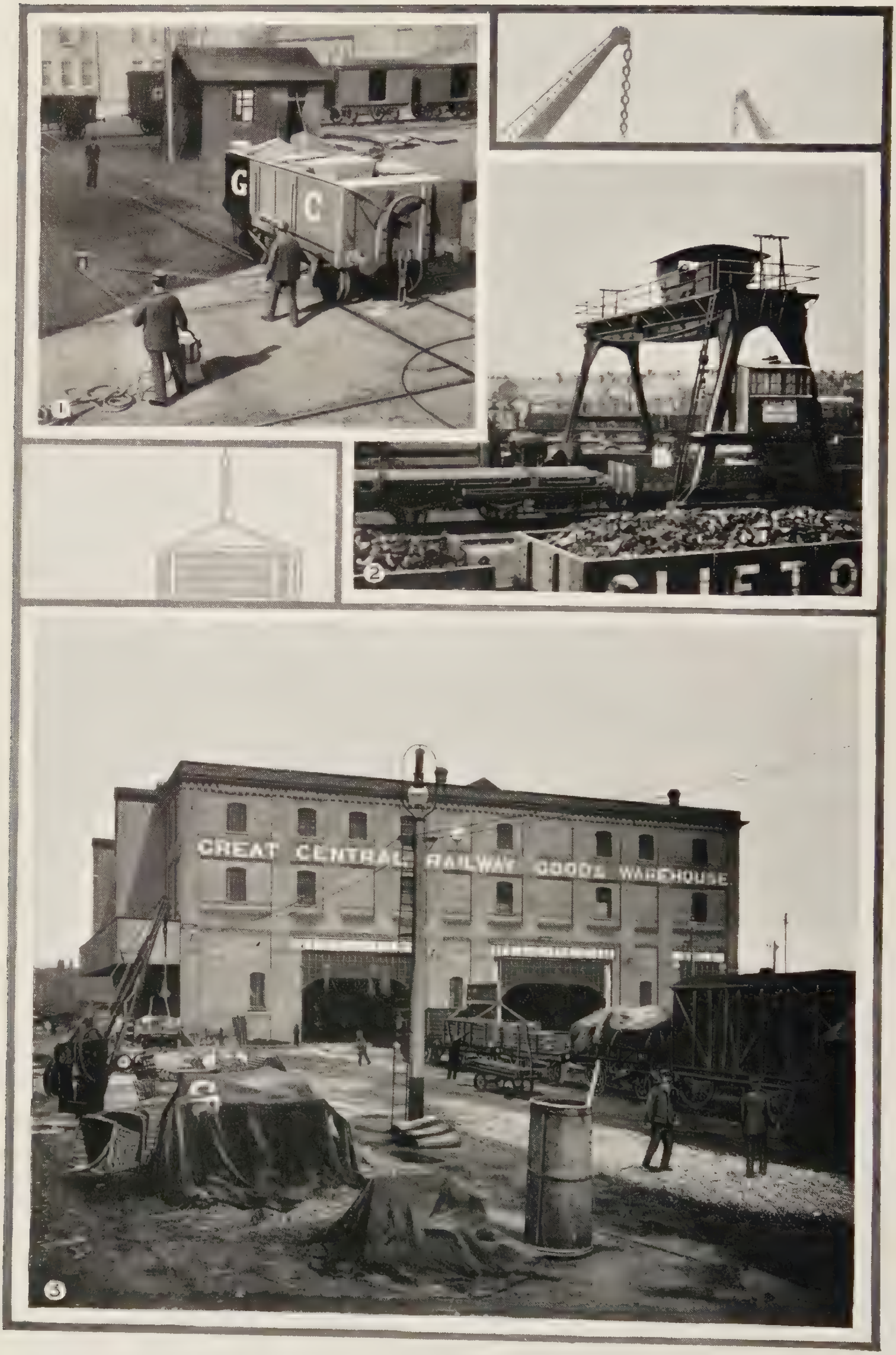
Nottingham

The Capital of the Lace World

NOTTINGHAM, which has won a popular reputation for its Market Square, its Goose Fair, and its Lace, is from many points of view a remarkable City. The population of the whole County of Nottinghamshire is probably not more than 600,000, and yet of this number the last census figures show that 270,000, or nearly one-half, reside in Nottingham itself.

In history the City is noteworthy for the part it played in the Civil War, but the activities of Nottingham have always shown a decided bent towards industry. While it would be unfair to say that its captains of industry have been fickle in their affections, it is none the less true that the passing generations have witnessed the rise and decline of various trades, although some have persisted through the changing centuries. Nottingham ales enjoy a good reputation to-day, and even in Saxon times the malting industry was established in Nottingham. It is suggested that an important adjunct to honest brewing is the proximity of the Nottingham water supply to beds of gypsum.

The art of cloth manufacture appears to have been brought over with the Conqueror: certain it is that the



NOTTINGHAM.

1.—Shunters at Work. 2.—Goliath Crane. 3.—Great Central Goods Warehouse.

industry was established in Nottingham following the Norman invasion. A Guild of Weavers was, indeed, in existence in the year 1199. The position of the district in the Wool Trade reached its zenith in the middle of the 14th Century, when the price of Nottingham wool set the standard for all England. It is a curious commentary upon the value to a country of possessions abroad that the decline of the wool trade of Nottingham is believed to have been intimately connected with the loss of Calais to the British Crown.

Nottingham retained its importance in the textile industry in later years, but wool gave place to cotton as the staple branch of the trade, and it is admitted that the rise of Great Britain to a position of supreme importance in the cotton industry was largely due to the inventive genius of the men of Nottingham. At the present time hosiery and lace are the special textile branches practised in Nottingham. In former days the Lace Industry of Nottingham, like the Sheffield cutlery trade, was carried on in village workshops, but it is now conducted on the factory system, and the excellence of Nottingham lace is acknowledged throughout the civilised world. The blouse trade is a newer development.

Iron and coal are other branches of national industry with which the name of Nottingham is linked. Charcoal appears to have been manufactured in Sherwood Forest in quite early days. The past reputation of Nottingham ironworkers was associated with the manufacture of agricultural implements, and harness, and the names of existing streets may be cited in this connection. Such thoroughfares as Smithy Row and Bridlewood Gate tell their own story. Bell-founding persisted for many centuries, the Nottingham craftsmen being recognised as masters of that skilful art.

To-day the first place in the engineering trade is occupied by the machine makers, who furnish the equipment to the factories of the City. Later developments are cycle and motor car manufacture, the cardboard box trade, and the tobacco business—one great house engaged in catering for the needs of smokers having its headquarters here.

It follows, therefore, that the goods traffic at Nottingham is of a widely varied nature, as a brief inspection of the contents of the Great Central Railway goods warehouse at Queen's Walk will quickly prove. From bales of American cotton to boxes of household soap, there are samples of almost every conceivable commodity stored on its extensive floors.

The warehouse occupies an extensive site, and is remarkable not only for its convenient situation, but for the suitable manner in which it is arranged. Access is given by two entrances—in Kirke White Street and Wilford Road respectively. The warehouse, a capacious block, is provided with three platforms and three roads, the western platform being indented with three bays, at each of which is stationed a special crane to permit of goods being transferred from dray to truck direct.

A tour of this huge edifice of brick and steel has a rare fascination. The ground floor forms the goods depôt, or station, where trains are received and despatched. Above this are two floors, of area equivalent to that of the whole building, well lighted by sky-lights (in the case of the top floor), frequent side lights, and in the case of the lower floor by a central well-light. The lower floor in particular is especially suited to goods which are subject to the influence of heat and cold, being cool in summer and maintaining at all times an equable temperature. In each corner of the warehouse are hydraulic hoists, of lifting capacity varying in different instances from ten to thirty hundredweight, the cranes serving interior and exterior sidings. There is thus a total of seven cranes for lifting purposes, and these are supplemented by three hydraulic lifts, each constructed to carry 25 cwt.

From the warehouse one steps into the surrounding Goods Yard. Close by are two other blocks of buildings, which include the Offices, the Power Station, and the Engine House. In the power station are four large dynamos, which generate the current needed to light the whole area occupied by the depôt, and provide motive force for the electric Goliath crane, with a lifting capacity of 25 tons, which is a prominent feature of the goods yard, and immensely facilitates the handling of heavy goods, such as machinery, timber, and the like. The engine house contains five huge boilers, and the engines provide the hydraulic power by which the warehouse cranes and lifts, and also the capstans used in shunting operations, are worked.

An important feature of the depôt is that the warehouse is approached by a siding from two lines of railway especially laid down for goods trains which run parallel with the main line for some considerable distance, and are of material value in enabling goods traffic to be expeditiously dealt with. It should also be mentioned that in addition to the half-dozen or so sidings which afford accommodation for the Coal Traffic, special communication exists between the depôt and the neighbouring Colliery. The arrangements for dealing with cattle are excellent, and every facility exists for the loading and unloading of furniture vans.

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CHESTERFIELD.

CHESTERFIELD, with its crooked spire, is an important centre of the Derbyshire Coal and Iron Industries. The Great Central Railway Company became directly connected with the town in 1892 when the Central Station was opened.

Four years later the Lancashire, Derbyshire and East Coast line was opened with a station at Market Place, and the absorption of this line by the Great Central in 1907 placed the latter in the very favourable position, inasmuch as their present stations are situated at either end of the town.

Easy access to coal and increased railway facilities are two of the important factors responsible for the growing prosperity of this important industrial centre, and amongst the manufactures carried on may be mentioned cotton goods, cardboard boxes, gas valves, steel tubes, earthenware articles, general and engineering machinery. It therefore follows that the Company is called upon to deal with traffic of a widely varied character, and the accommodation provided will be found adequate for the many needs, both at the Central and Market Place Stations. Cranes are installed capable of lifting up to 10 tons.

An efficient cartage organisation is attached, and every arrangement has been made by the Company to satisfactorily deal with traffic entrusted to their care for conveyance to places at home and abroad.

Sheffield

The Heart of the Greatest Metal Working District in the World

AMONG the important cities served by the Great Central Railway none occupies a higher place than Sheffield, the greatest armoury of the World, as it is also the most important centre for Cutlery, Electro-Plate, Edged and other Tools. The City owes its position to great mineral wealth, and other lavish endowments of Nature. From the earliest period the name of Sheffield has been associated with what has been developed into an immense national industry. It is the great focus of the world's steel trade. It is also the centre of a vast coal field, and the existence of this national fuel supply at the doors of the city is largely responsible for the pre-eminence of Sheffield in steel production. The records of metal working in this district carry the story back to Saxon days. The fame of Sheffield for cutlery manufacture is known to have been well established in the days of good Queen Bess, and the famous Cutlers' Company was incorporated in 1624. The prestige associated with Sheffield Cutlery has been maintained down to the present day, and the reputation of her manufacturers for good

SHEFFIELD.
1.—A Group of Furnace Chimneys. 2.—Potato Warehouse.
3.—General View of Bridgehouses Goods Yard.

work is more jealously guarded than ever. The determination of its past and present industrial leaders to produce Steel and Cutlery superior to all other in the world is a story of a high ideal, nobly realised.

The electro-plate trade is also an important Sheffield industry. To the lighter steel industries has been added during the modern period the activity of the heavy steel trade. There are now many hundreds of steel works in Sheffield, the great firms, employing many thousands of hands, including names which have a world-wide reputation. There are works in Sheffield to-day which in association with their branch enterprises can build and equip a modern battleship from the laying down of the keel plates to the hoisting of the pennant. Armour plate projectile and ordnance manufacture are specialised industries of Sheffield. The production of the modern tool steels is another branch of the steel trade in which Sheffield manufacturers have played a pioneer part. Railway rolling stock construction is yet another industry represented here.

The population of Sheffield, which has become the largest town in Yorkshire, is now nearly half a million. Sheffield is not only on the main London to Manchester route of the Great Central Railway but is also on the direct route from Liverpool and Manchester to Hull, the North of England, Grimsby and Immingham, the two last named being the natural ports of Sheffield. The specialised character of the trades of the district calls for special transport facilities, and it will be evident from what follows that the Great Central Company has made lavish provision for the industries of this district.

In the vast warehouses of the Great Central Railway attached to the Bridgehouses Station are stored immense quantities of all kinds of merchandise.

Most interesting, perhaps, is the Granary, which is, indeed, a remarkable sight. Each of its four floors has an area of one acre, and here may be seen at all times vast quantities of every kind of grain, both in bags and in bulk. Wheat, on the whole, preponderates, milling being carried on to a considerable extent in Sheffield, but barley, oats, and other cereals are present also in large quantities. A portion of one floor, for instance, has more than once been covered with 10,000 quarters of barley in bulk, a great mound or rampart of grain shot into one huge pan, or boarded compound; frequently there will be as much as 20,000 sacks of one kind of grain only, stored in different lots in the warehouses.

In many ways the Granary at Bridgehouses is unique, and is not unworthy of the description which has been applied to it of "the best grain warehouse in the country." Customers declare that its equal is not to be found for getting grain into condition, while the convenience of its arrangement makes the handling of traffic simple and expeditious. The Railway being on a high level, trucks are placed direct on the top floor of the warehouse, and the sacks rapidly lowered thence to other floors for storage, or direct to customers' vehicles, by mere force of gravity.

The entrance to the granary is in Johnson Street, the ground floor affording cool storage for such provision traffic as cheese, butter, and general groceries. A separate storage is provided for tea.

The Potato Warehouse is scarcely less remarkable than the Granary. This practically consists of two warehouses contiguous, each containing four extensive floors, so arranged that traffic can be unloaded direct from the truck, and equally conveniently adapted for the purposes of delivery. Bags and bags and bags of potatoes greet the eye, as one climbs from floor to floor, or picks a way through the narrow gangways—and after that more bags. A fresh earthy odour, clean and wholesome, pervades the atmosphere, and even were the contents of them not known beforehand, it would not need an Irishman to detect from the pleasant smell what was stored within the warehouse's ample area. In the height of the season, from September to March or April, one may see as many as 100,000 bags of potatoes here, fully protected from the effects of the severest weather; and at all times the warehouse holds plenty of this stock.

The Order Warehouse for general traffic has a frontage to Nursery Street. Being large and roomy it affords ample accommodation for all classes of goods, and its equable temperature makes it especially suitable for such as require cool storage. Good crane power is provided, and arrangements are made whereby consignments can be kept either

SHEFFIELD.

1.—Grain Warehouse.

2.—Cattle Dock.

on wooden stages or on the stone floor. Here are eggs by the thousand, boxwood and ebony (heavy as iron) for the manufacture of handles to fit Sheffield cutlery, wooden hoops for barrels, packed neatly one within another, and all sorts and conditions of articles besides. Here, too, is a beam scale machine for the accurate weighing of the precious ingots of copper and Cornish block tin that are stacked close by.

In the Goods Yard at Bridgehouses may be seen a remarkably wide variety of rolling stock, including heavy-weight wagons and trucks that will carry loads up to 40 and 50 tons. In addition to the vast amount of miscellaneous goods, features of the Sheffield traffic are the huge sheets of armour plating, massive steel rams for battleships, gigantic castings, titanic steam boilers (many of which, owing to their dimensions, require for their conveyance special "well trolley" wagons nearly sixty feet long), and the like, which are sent forth from the great steel and iron works for which the neighbourhood is famous. From Bridgehouses Station special sidings give direct access to all the large works between the Goods Yard and Wincobank, with the result that a very great deal of this exceptionally heavy traffic passes in trucks from the senders' works directly over the Great Central route.

The Goods Yard itself covers a wide area, and contains a very commodious shed which has two lines of rails and is capable of accommodating no fewer than 24 wagons, for dealing with bright iron or steel during inclement weather. Outside, numerous sidings facilitate the working of the traffic with the utmost celerity and despatch. The crane power, too, is remarkable, ranging from small machines with a lifting capacity of 15 cwts. to the

Hydraulic Goliath crane which will raise, and travel with, a load of 45 tons.

Special mention must be made of the Cattle Dock, which on Mondays, Tuesdays, and Wednesdays (the cattle market days of Gainsborough, Retford, Doncaster, Salford, and Wakefield) presents a very busy scene, owing to the arrival of the large supplies needful for the city's requirements. Further, its convenience as regards arrangement is very great, it being possible to place the railway vehicles in position for unloading directly they arrive, and thus deal with full train loads without delay. The pens are good, the water supply excellent, and specially-appointed cattle-men are in attendance at all hours.

In the collection and delivery of goods the equipment of Bridgehouses is quite up to date, including steam motors in addition to a large number of ordinary horse-drawn drays and lorries. The Great Central indeed is the first, and so far the only, Railway Company in the neighbourhood of Sheffield to introduce road motor traction for the handling of goods traffic.

The Offices are furnished with numerous telephones, and the station staff is thus in immediate touch with all manufacturers in the district.

FORTY-TON ARMOUR PLATE WAGON.

ATTERCLIFFE STATION.

In addition to the great depôt at Bridgehouses, the Great Central Railway possesses several other goods stations in Sheffield and its environs. The next in importance is Attercliffe.

Through the acquisition of the Lancashire, Derbyshire and East Coast Railway, the Great Central Company has at its disposal this valuable and commodious station, which greatly facilitates the expeditious handling of an ever increasing traffic. It contains a large warehouse two storeys high, for the storage of Grain, and merchandise, and ample yard space for Timber, Iron, Hay, Straw, Coal and Coke.

There is also a high loading dock for tipping from carts direct into trucks, thereby effecting a considerable saving in time and labour. The crane power is capable of lifting anything up to 35 tons in weight, and includes a 10-ton and a 5-ton steam travelling crane; while the provision made for weighing is adequate, comprising a wagon weighing machine, and in addition two machines for dealing with road vehicles, of 8 and 20 tons capacity respectively. Cattle pens are provided for the handling of live stock.

This station is principally used by the heavier trades for which the district is noted. Being in the East end of the city it is conveniently situated for the many important steel works, and much of the traffic passing through it consists of heavy castings, forgings, boilers, etc.

Every facility is also afforded for dealing with wheeled furniture vans, portable engines, and machines on wheels, besides cattle and general goods.

There are two entrances to the station, viz., in Stevenson Road and in East Coast Road (off Brightside Lane).

PARK STATION, FURNIVAL ROAD.

Park Station is a central mineral depôt, at which such general traffic as Coal, Coke, Lime, and Iron in small "handable" shape is dealt with, as well as deals, battens, and boards. As regards situation, it is the most central railway depôt in the city, and an enormous amount of traffic daily passes through it. Of coal alone, although the Company has a depot at Harvest Lane exclusively for this traffic, as much as a thousand tons per day is dealt with at the Park Station. This is rendered possible by the extensive accommodation provided, which includes 14 coal drops, for the convenience of merchants, there being also room for 230 wagons of coal, and 130 wagons of general traffic.

The iron traffic is considerable, pig iron, blooms and billets, Swedish bars, and all forms of traffic which can be

STACKS OF IRON BARS, PARK STATION, SHEFFIELD.

loaded by hand, being dealt with. Lime and stone figure largely, while timber, in the shape of deals, battens and boards plays an important part. Traffic with the agricultural districts—Lincolnshire especially—is also heavy, more fodder, hay, and straw being received at the Park Station than at any other railway depôt in the district.

The Park Station is well equipped. There are two cart weighing machines at the entrance to the depôt, and there is also a beam scale machine for the exact weighing of particular classes of traffic. For the convenience of traders, a number of offices have been erected within the depôt, and every facility is afforded to the traders, and the public generally.

Beneath the depôt—which is on the high level—is a large bonded warehouse situate in Furnival Road. The temperature is very equable, varying little from summer to winter, and the large ground areas provide excellent accommodation for the storage of wines and spirits.

HARVEST LANE DEPÔT.

Here Coal Traffic is specially dealt with. The yard is large and the accommodation excellent, the depot being provided with a good cart weighing machine, and also 27 large coal drops placed adjacent to the goods line conveniently for prompt unloading.

The Sheffield goods traffic is also greatly facilitated by special arrangements which the Great Central Company has made at the outlying stations of Darnall, Broughton Lane, and Wadsley Bridge.

DARNALL

was formerly only a passenger station, but owing to the extension of the city, a Goods Yard was opened some time ago, to which a cartage staff is attached for the delivery and collection of goods in the district. The yard is provided with crane power up to 10 tons, and with a weighing machine.

BROUGHTON LANE

taps the busy Attercliffe district. There is a large warehouse here, and every facility for dealing promptly with all classes of traffic. A number of the large works in this neighbourhood are connected by sidings with the Great Central Line, and consignments can consequently be received and forwarded with the utmost despatch in through wagons. An adequate cartage staff is provided, and the yard is equipped with crane power up to 40 tons, in addition to a cart weighing machine.

TINSLEY.

This station is nearest to the village of that name, recently absorbed by the City of Sheffield, and is making great progress. Several large works have been erected, whilst others are in course of erection and construction, and a rapid development and extension of the district generally is taking place.

There is an excellent Goods Warehouse, also Loading Dock for accommodating wheeled furniture vans, road vehicles, etc., and a thoroughly equipped Cartage Staff.

WEST TINSLEY (formerly Tinsley Road).

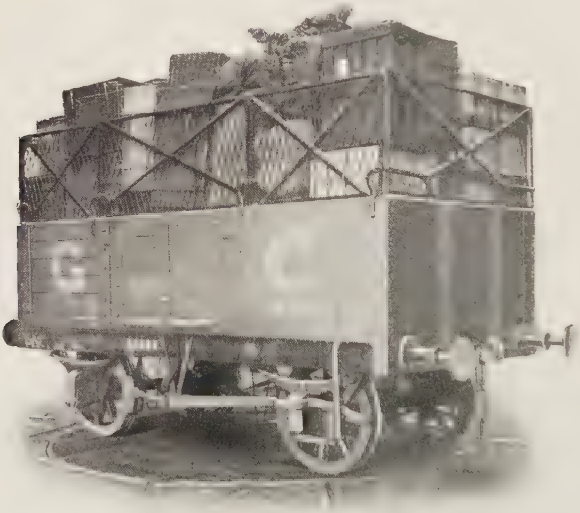
Again by the acquisition of the Lancashire, Derbyshire and East Coast line, and the consequent working of the Sheffield District Railway by the Great Central Railway, there is placed at the disposal of the trunk line yet another additional depôt for the treatment of the vast Sheffield trade, especially that of the large works in the vicinity connected by siding.

Ample warehouse accommodation is provided, and the crane power ranges from 30 cwt. to 10 tons, and a cart weighing machine is on the premises.

GOODS WAREHOUSE AND YARD, WEST TINSLEY.

WADSLEY BRIDGE

has a full cartage staff to attend to the collection and delivery of goods in the surrounding district, and is the nearest and most convenient for military requirements, being within easy distance of the local barracks. There is an extensive goods warehouse, and accommodation for wheeled furniture vans, road vehicles and live stock, and crane power for articles up to 20 tons. During recent years there has been a considerable increase in the residential population of the district, together with extensions and additions to the local works, and to meet increased requirements a large yard, with weighing machine, has been provided for the coal, coke, timber, iron, &c., required by traders. Space is provided in the yard for the offices of the Coal and other Merchants.



WAGON FITTED WITH WIRE EXTENSION FOR GOODS OF LIGHT WEIGHT.

The Sheffield "Per Rail" Supplement, containing a list of Offices in Sheffield at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Sheffield, can be obtained free on application to the District Goods Manager or District Goods Agent, Victoria Station, Sheffield, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

ROTHERHAM.

THE adjoining town of Rotherham, with a population of 62,500, is closely associated with the Coal and Iron Trade. Indeed, the township of Kimberworth, near Rotherham, may be regarded as the nursery of the South Yorkshire Coal trade. Here blast furnaces are in operation, and there is a large output of pig iron. It is interesting to recall the fact that at Parkgate were rolled the plates for the ss. "Great Eastern," and here armour plates were first produced. The works in the Rotherham area make a large output of plates and bars and steel ingots.

The Great Central Company, it can fairly be said, offer facilities to Rotherham manufacturers and traders which are unrivalled in the borough. The Goods Depôt lies in the very centre of the town, and the convenience of its situation is illustrated by the fact that a large number of customers who do their own carting make use of the station solely on account of its central position.

The Warehouse accommodates on its two floors not only general goods, but a considerable quantity of grain. Indeed, the bulk of the Rotherham grain traffic passes through the hands of the Great Central Company's agents, while in estimating the extent of the whole goods traffic it must be borne in mind that the station serves not only Rotherham itself, but the large rural district which is embraced within a radius of six or seven miles.

The principal feature of the Rotherham traffic is perhaps the immense wheel and axle trade. These products of the neighbouring steel works are continually—one might say continuously—being sent to the Continent, Egypt, China, the Cape, India, Japan, South America, and other parts of the World. Frequently long trains leave the depôt loaded with nothing else, and at all times it is certain that lorries without number may be seen bringing loads of these heavy goods into the yard ; or a gang of loaders may be watched at work with the cranes, swinging the freshly painted steel on board the waiting trucks.

Government, Railway, and Municipal contracts placed locally result in a large output of railway and tram rails, forgings, crank axles, and tyres for railway engines and carriages, plates for ships, and boilers. The advent of the motor car, too, has created a demand for light forgings, which are produced in large quantities. Then again, though iron and steel goods are perhaps the staple trade of Rotherham, the potteries, stove grate factories, glass and other works also contribute their quota.

In every respect the Great Central Railway Goods Depôt at Rotherham is adequately equipped to meet the heavy demands made upon it. It should be mentioned that the yard contains a commodious shed, in which bright iron or steel is loaded during inclement weather, and a large coal depôt is close at hand.

The Rotherham "Per Rail" Supplement, containing a list of Offices in Rotherham at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Rotherham, can be obtained free on application to the Goods Agent, Rotherham and Masboro' Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

RETFORD.

RETFORD is favourably situated with respect to Railway facilities, being an important junction on the Great Central and Great Northern Railways, and forming a link in the railway chain which unites the industrial districts of Yorkshire and Lancashire with the East Coast Ports of Grimsby and Immingham. It has a population of about 14,000 inhabitants, and its commercial interests are not by any means unimportant.

One of the largest works in the Country engaged in the construction of Coal and Coke Handling Plant and Machinery for Gas and Coke Ovens is situated here.

Other important industries are a Rubber Works, a large Foundry, Paper Mills, Corn Mills, etc.

Retford is also a favourable residential area for Sheffield business men, and a good hunting centre.

Two fairs of local importance are held annually—in March for horses and in October for sheep. The Market, held by virtue of a Charter granted by Edward III., is on Saturday.

Retford is a good agricultural district, and large supplies of vegetables of all kinds are grown for the Sheffield and other markets.

The Retford "Per Rail" Supplement, containing a list of Offices in Retford at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Retford, can be obtained free on application to the Goods Agent, Great Central Railway, Retford Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

GAINSBOROUGH.

THIS prosperous town has a favourable location on the River Trent, between the great industrial districts of Nottingham, South Yorkshire and the ports of Grimsby and Immingham. There is a touch of the picturesque about the place and the famous Old Hall never fails to win the admiration of visitors.

The interests of the district are mainly agricultural, and Gainsboro' is the centre for linseed cake and other agricultural products. An important cattle market is held here each Monday.

The factories, which are engaged in the engineering trade, are largely devoted to the production of agricultural machinery, for which the district has won a reputation which is world-wide. A certain amount of iron founding is also carried on and boat building businesses are established on the river sides. These form the main occupations of a town the population of which now numbers some 25,000. The opening of Immingham Dock is destined to give a fillip to trade throughout this district.

The Goods Warehouse has accommodation to adequately meet the requirements of traders, and the Goods Yard is equipped with 5, 10, and 12 ton cranes, in addition to other requisites.

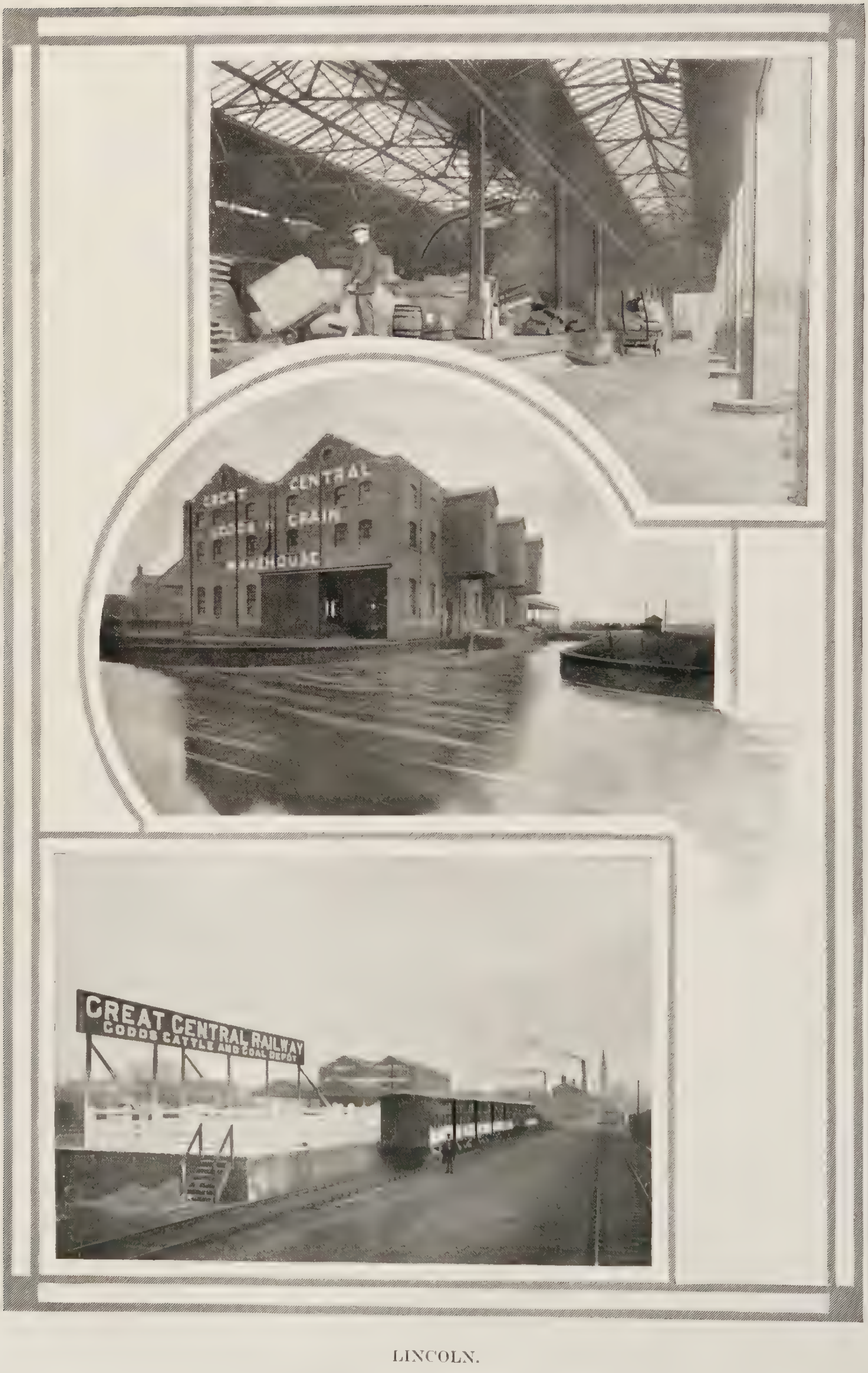
The Gainsboro' "Per Rail" Supplement, containing a list of Offices in Gainsboro' at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Gainsboro', can be obtained free on application to the Goods Agent, Great Central Railway, Gainsboro' Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

Lincoln

An Important Agricultural Centre

THE ancient city of Lincoln is undoubtedly one of the most interesting places through which the Great Central Railway passes, and although in this, a Cathedral City, one would expect to find little commercial life, the moment we alight from one of the Great Central Company's fast trains and enter High Street, we are impressed with that bustle and activity invariably associated with large commercial centres.

The city, of about 52,000 inhabitants, is served by no fewer than four different Railway Companies, none of which is more alive to its requirements than the Great Central. The approach to Lincoln from the West is *via* Sheffield, Retford, and Sykes Junction : from the South and South-West *via* Banbury or London, Leicester, Nottingham, and also over the recently acquired Lancashire, Derbyshire, and East Coast Railway. Hull is reached from Lincoln *via* Thorne, also *via* New Holland ; and the important East Coast ports of Grimsby and Immingham are brought into close touch by an excellent service of trains ; therefore the Company is in a position to efficiently serve any demands the public may make upon it.



LINCOLN.

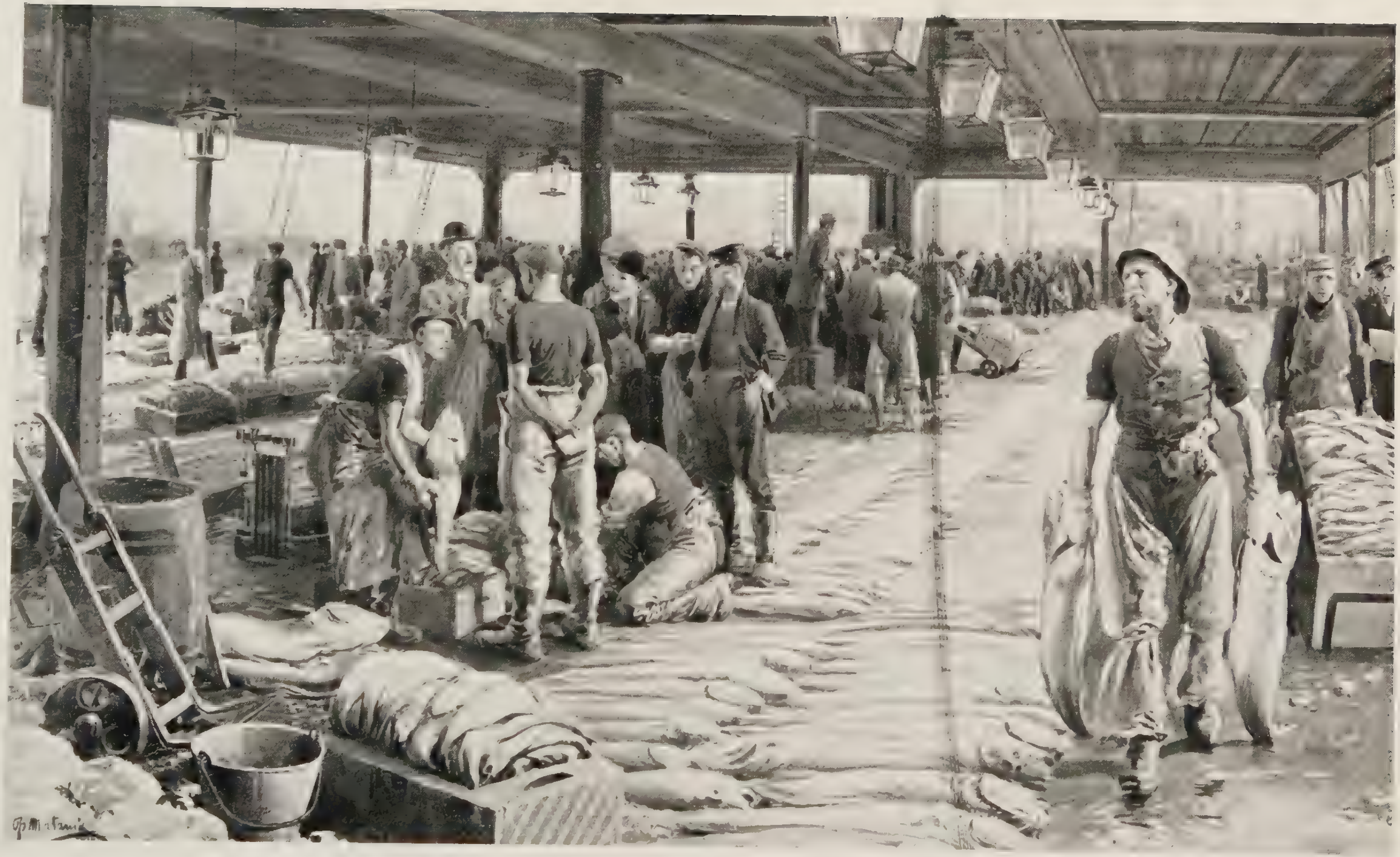
Goods and Grain Warehouse and Depot.

One of the chief industries is the manufacture of agricultural machines, of which large quantities are made in the various works, and (in addition to meeting home requirements) exported to all parts of the world. At all times may be seen huge machines of all descriptions loaded on wagons which have been specially constructed by the Company to carry this class of traffic, awaiting despatch. In addition to the foregoing there are many other businesses carried on which tend to the advantage of Lincoln.

The Goods Yard, although of spacious proportions, was found to be too small to cope with the growing demands made upon it, and the Company has, as usual, risen to the occasion and recently made considerable extensions, and also erected a large and commodious warehouse on Holmes Common, for the storage and distribution of grain and general merchandise. This, together with the siding accommodation, covers about 35 acres of land, and is fitted with all the latest appliances for dealing expeditiously and effectively with the increasing business.

Lincoln, being the county town of Lincolnshire, is of course the distributing centre of a large produce traffic, and the new goods warehouse and sidings afford the greatest facilities to the Company's numerous supporters. It will also be interesting to know that a Dock has been provided at which the boats from the River Witham and the "Foss" may discharge their cargoes direct into the warehouse or wagon.

The Lincoln "Per Rail" Supplement, containing a list of Offices in Lincoln at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Lincoln, can be obtained free on application to the Goods Agent, Great Central Railway, Lincoln Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.



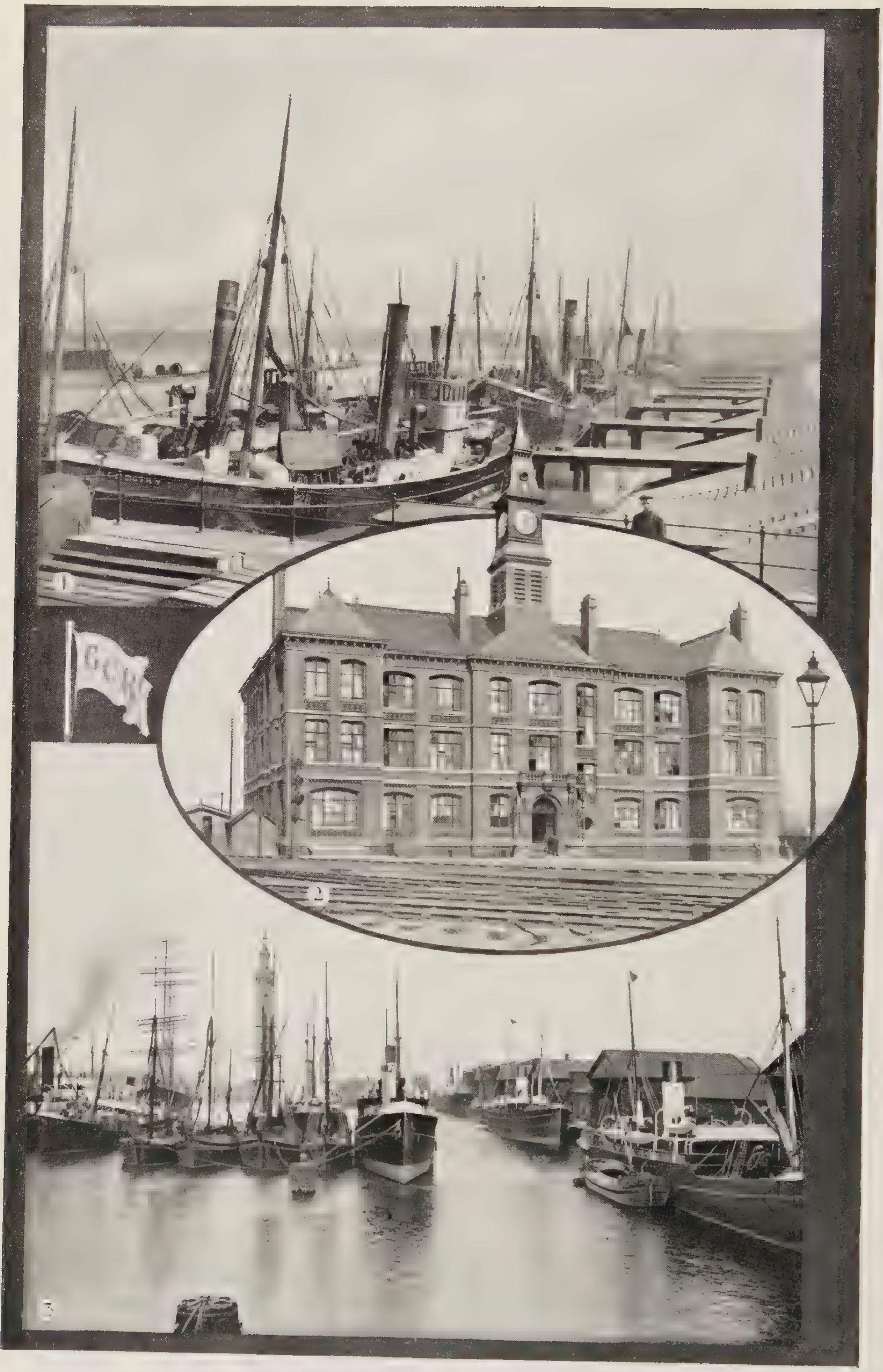
ONE OF THE FISH PONTOONS AT GRIMSBY DOCKS.

Grimsby
The World's Premier Fishing Port

GRIMSBY, the first fishing port of the World, is the creation of the Great Central Railway Company, which has conjured it into being, by a rapid process of evolution, where once a tiny harbour, rendered useless by the silting up of mud, lay melancholy and deserted.

At the present day Grimsby rivals Hull in size and importance, and is likely to become as big as any port in the kingdom. As the centre of the Fish Trade it occupies a position unchallenged by any port of the World; and of rare fascination is it to watch the marvellous organisation by which the immense quantities of fish daily disgorged by the fishing vessels at the docks are passed through various hands, and with amazing expedition distributed to the many distant markets throughout the Country.

The two principal fish docks at Grimsby are known respectively as No. 1 and No. 2. The former is entered direct from the sea, or rather from the estuary of the Humber, the latter being "inland" as it were, with access



GRIMSBY DOCKS.

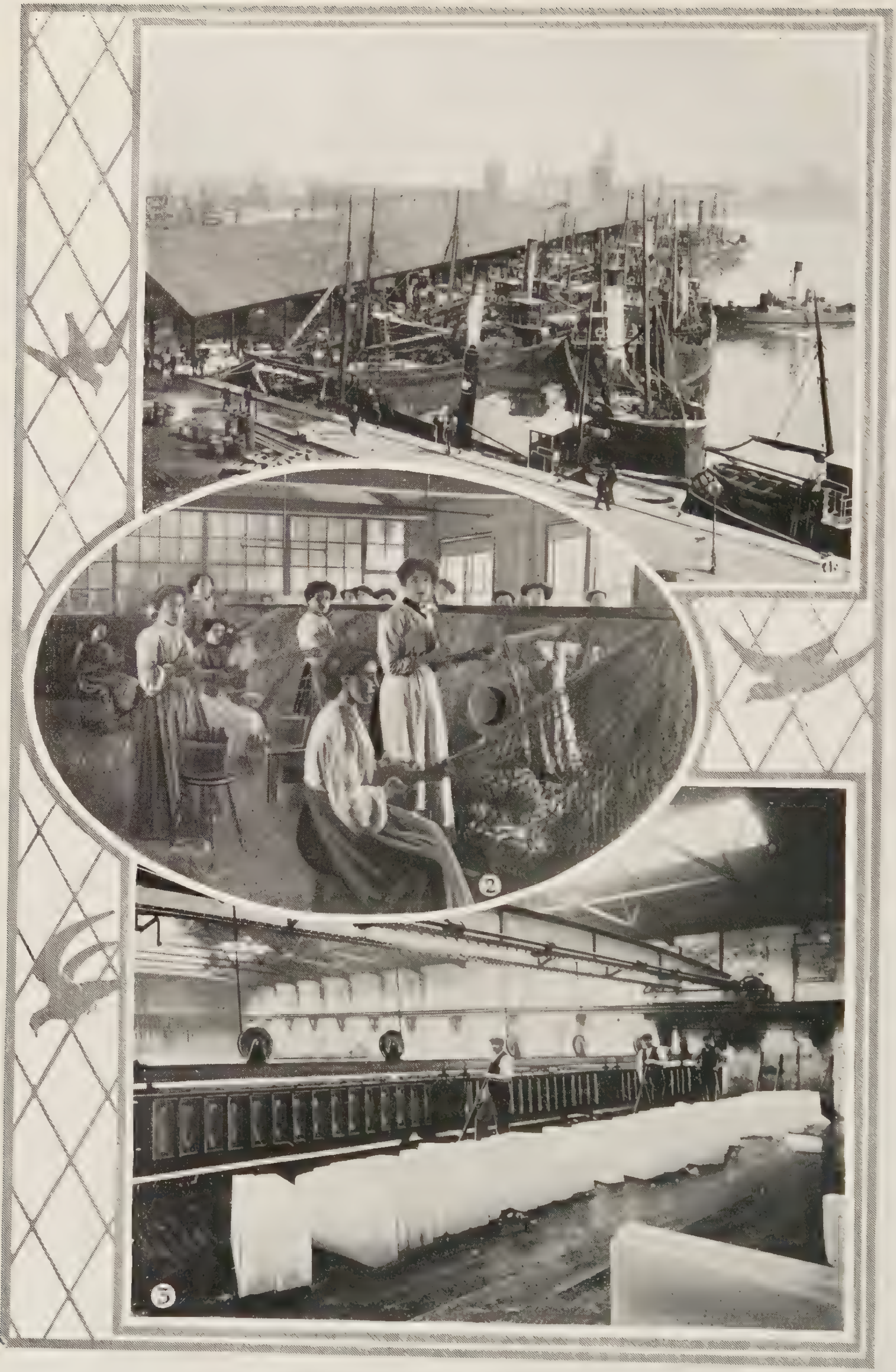
1.—Steam Trawlers in Graving Dock. 2.—Great Central General Offices.
3.—View of the Royal Dock.

through a cutting from No. 1. The quays all along one side of the two docks are covered over the whole of their width, and the side next the water, save for frequent gaps, is boarded in. A lengthy shed, as it were, is thus formed, of which the "land" side is left open; and here numerous rails are laid, which enable the long fish trains to be drawn up alongside, the level of the roadway being sufficiently below that of the "fish pontoon" (as the whole length of the market quays is known) to bring the floors of the trucks flush with the flags of the pontoon. On these flags the fish is sold and bought, so that it will be seen that a distance of practically only a few feet has to be traversed in transferring the scaly spoil from trawler to train.

At about six o'clock in the morning the trawlers begin to come in from the fishing grounds, and from that time onward, till perhaps noon, a most entertaining and instructive time may be spent in patrolling the pontoon—always with a care lest the unwary feet trip upon its slippery floor—and watching the various adventures of the fish, from the time when it is hauled up from the inner depths of the vessel to its departure in the long fish train creeping stealthily through the dock gates on its way westward to the big cities, where it is to make its final appearance upon the breakfast or dinner table.

One by one the trawlers steam slowly up to No. 1 Dock, pass through the narrow way, and take up their position in the long line of similar vessels that are moored, stem on, to the pontoon quay.

Then commences the business of unloading the fish. The operations here depend upon the nature of the cargo. If the vessel has come off a voyage with salt fish, the latter will be hauled out in baskets, and forthwith wheeled



SCENES AT GRIMSBY DOCKS.
1.—Steam Trawlers at Fish Quay. 2. Girls Making Fishing Nets. 3.—Artificial Ice Factory.

into the market, and laid out for inspection. But if the fish be still living, and intended for sale as "live" (that is, fresh killed) it has first to be despatched with a mallet before it can be unloaded. The scene is not a pretty one; the luckless creatures being hauled up in a big, long-handled net, pitched on to the deck in a struggling, flapping mass, and promptly knocked on the head by two or three brawny hands, who stand by armed with wooden hammers or iron bars. Some of the larger fish, it is said, give vent to a death-squeak. The fish killed, a couple of hands are employed in wheeling large tubs, on trolleys, between the flags of the pontoon behind and the edge of the quay, and into these receptacles as they come back empty from each journey, the rest of the crew fling the dead spoil. This, as it is tipped out on to the pavement, is arranged in neat rows according to size, the finest fish being placed in the front rank. Of course, such mode of handling applies only to cod, halibut, and the larger kind of fish, the smaller fry, such as whiting and the lesser flat fish, being piled into wooden boxes, which in turn are set out in ordered rows.

By eight o'clock, or soon after, the business of unloading is completed, and the market presents a remarkable sight with its serried rows upon rows of fish. Then the buying begins. This is conducted by auction, and so quickly is the buying and selling concluded, and so expeditiously is the fish collected, that within a very short time the pontoon, lately crowded with fish, is almost bare.

Next comes the cleaning and packing, and then the loading of the trains. The great majority of the fish trains are shunted alongside the pontoon, as already described, with the result that the packing is very rapidly accomplished. The rolling stock used is of two kinds salt fish and that which can be packed in boxes, barrels, crates, or similar receptacles being carried in latticed vans similar to those used for the meat, fruit, or milk traffic.

As soon as they are loaded up, the fish trains proceed through the dockyards to Grimsby Docks Station, whence they carry the fish to the important markets of Sheffield, Manchester, Liverpool, Leeds, Nottingham, Birmingham, London (Billingsgate) and the South. During Lent, and especially in Holy Week, the ordinary service of fish trains is greatly augmented to meet the largely increased demand of the markets. Tuesday and Wednesday before Good Friday are the busiest days of the year, and on those dates a dozen or more special trains have to be run in order to cope with the immense traffic. Some idea of the amount of work this Eastertide traffic throws upon the Great Central's staff at Grimsby can be gathered from the statement that nowadays more fish is despatched in a day than was forwarded in a whole year for some time after the opening of the Docks.

The traffic increases year by year, and the development of Grimsby can scarcely be better illustrated than by a comparison of the figures for 1854 (the opening year of the Port's era of prosperity), and those for 1900 and 1911. In the first-mentioned year 453 tons of fish were sent away; in 1900 the total reached 133,791 tons, and in 1911 rose to 196,754 tons.

The existing accommodation has become inadequate to meet the pressing demands of this business, and the Company has obtained Powers for the construction of a new Fish Dock, with a water area of 28 acres and additional quay space of nearly 4,000ft.

An interesting adjunct to the fish traffic of Grimsby is the Ice Trade. Every year some 7,000 to 8,000 tons of ice are imported, principally from the ports of Norway, and although some of this great quantity finds its way inland, the bulk of it is used in connection with the transport of the fish by sea and land. The natural ice is supplemented by the artificial article, 140,000 tons of which are manufactured every year by the two large ice factories, one being the most extensive in the Kingdom, situate on the Fish Docks and in the town,—each of which possesses plant capable of turning out 300 tons of ice per day. Prior to 1897, the ice consumed by the fishing trade at Grimsby was entirely the natural product from Norway, but owing to the unreliability of the supply, increased demands by other countries, and enhanced prices, it was found necessary to introduce the artificial product at the port.

The rapid growth of the Fishing Industry necessitated extensions in all directions, and as the difficulty of coaling the vessels appeared, the Great Central Company quickly overcame that by erecting two fast-working hydraulic coal hoists.

But Grimsby is something more than a great fishing port. The fish docks, indeed, comprise only part of the Dock Estate, which includes in its extensive area 340 acres of land and 104¼ acres of water. At the end of the 18th century Grimsby was a little town of less than 1,000 inhabitants, who lived in the neighbourhood of what is now George Street and Haven Street, and an indication of the extraordinary growth of the port is found in the result of the 1911 Census, which showed a population of nearly 100,000. It may be of interest to give here some particulars of the progress made during the last 100 years, and more especially during the period since the Great Central Railway, then called the Manchester, Sheffield and Lincolnshire Railway, purchased the Dock in 1846.

In 1796 an Act of Parliament incorporating the Grimsby Haven Company was obtained for the purpose of building a dock. This was opened on the 30th December, 1800, and to facilitate trade the Corporation parcelled out part of the East Marsh, by the side of the newly made dock, into three streets, now called Victoria Street, Burgess Street and King Edward Street, and allotted building plots of 360 yards each, one of which was granted to every Freeman for 99 years, but afterwards made freehold subject to a nominal rent. Development was, however, very slow until the old Manchester, Sheffield and Lincolnshire Railway purchased the Docks in 1846. In that year, however, the first pile was driven of another dock, "The Royal," and on the 18th April, 1849, the late Prince Albert laid the foundation stone. The dock was completed in March, 1852, being formally opened on the 27th May of the same year.

The prospects and trade of Grimsby then began to look up. The first steamship despatched from the docks was the "City of Norwich," belonging to the North of Europe Steamship Company, which sailed with cargo to Hamburg in May, 1852. Thirteen years later, in 1865, the Railway Company purchased the Anglo-French Company's fleet of boats, which had replaced that of the North of Europe Company, and started running steamers to Hamburg. The following year (1866) a service to Rotterdam was instituted, this being extended to Antwerp in 1867. On the 1st of December, 1885, the sailings between Grimsby and Hamburg were increased from two to four per week, and on the 1st July, 1891, a daily service was established (Sundays excepted).

The Antwerp Services have been increased to three sailings in each direction each week and during the Brussels Exhibition of 1910 this route was especially favoured, being probably the most popular.

In September, 1906, the sailings between Grimsby and Rotterdam were increased from two to three per week, and early in 1907 two new steamers—"Marylebone" and "Immingham"—were placed on this service. These steamers marked a new era in the Continental Service from the Humber, being far in advance in accommodation of any vessels leaving that river. They were built alongside the mammoth Cunarders, and are in reality models of them.

Since 1910 four magnificent new Royal Mail Steamers have been placed on this, the most direct, service from England to Hamburg. The luxurious accommodation is amidships, most of the staterooms being situated on the bridge deck. A costly and tastefully furnished Ladies' Lounge, with mahogany bookcase and writing table, easy chairs, etc., has been provided—which makes the ladies' passage a delight; a very fine Smoking Room, which has a well equipped bar; a Cabin-de-Luxe fitted with brass

GREAT CENTRAL STEAMSHIP "IMMINGHAM."

bedsteads, a porcelain washstand, and armchairs, have also been included. These four miniature floating palaces, together with the magnificent steamers "Immingham" and "Marylebone," now maintain this service.

To-day the Port of Grimsby possesses nine docks as under:—

Name.	*Area.*	*Length of lock.*	*Width of lock.*	*Depth of water on sill.*
	acres.	*feet.*	*feet.*	
ROYAL	25	L. 300 S. 200	70 45	H.W.O.S.T. 26′ 0″ H.W.O.N.T. 22′ 0″
UNION	1¼	230	44	H.W.O.S.T. 25′ 6″
ALEXANDRA ...	49	145	35	H.W.O.S.T. 25′ 6″ H.W.O.N.T. 21′ 6″
No. 1 FISH ...	13	145	35	H.W.O.S.T. 22′ 6″ H.W.O.N.T. 18′ 6″
No. 2 FISH ...	16	Entrance through No. 1 Fish Dock.	39	H.W.O.S.T. 22′ 6″ H.W.O.N.T. 18′ 6″

PONTOON DRY DOCK FOR FISHING CRAFT
Length on blocks, 116′ 8″
Depth on blocks, 15′ 0″
Maximum lifting capacity, 425 tons.

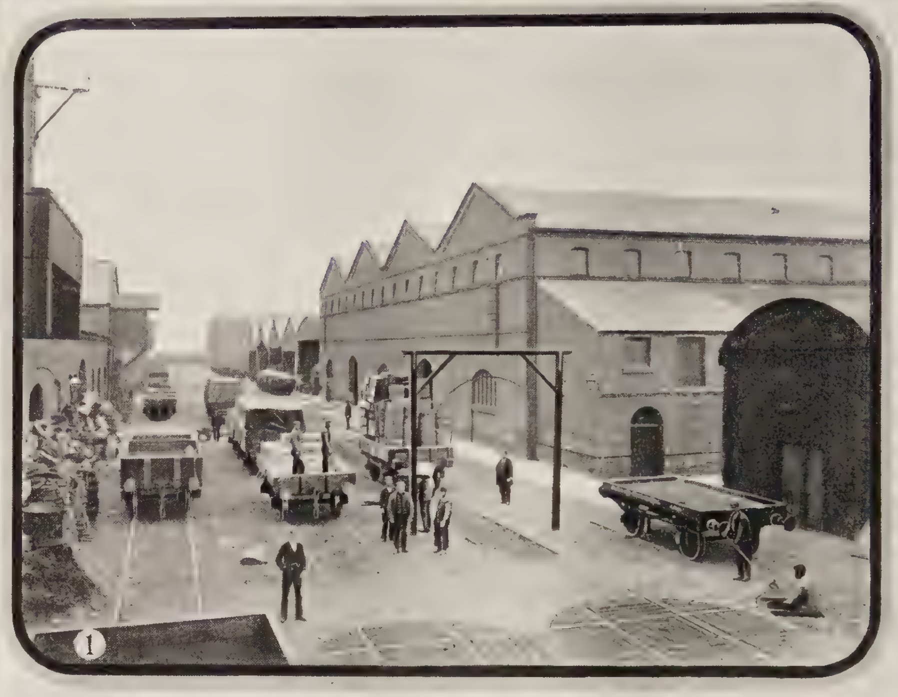
Name.	*Length of dock.*	*Width of dock.*	*Depth of water on sill.*
	feet.	*feet.*	
No. 1 GRAVING ..	400 at entrance	86 70	H.W.O.S.T. 20′ 0″ H.W.O.N.T. 16′ 0″
No. 2 GRAVING (FISH)	400 at entrance	50 30	H.W.O.S.T. 18′ 0″ H.W.O.N.T. 14′ 0″
No. 3 GRAVING (FISH)	450 at entrance	58 35	H.W.O.S.T. 20′ 0″ H.W.O.N.T. 16′ 0″

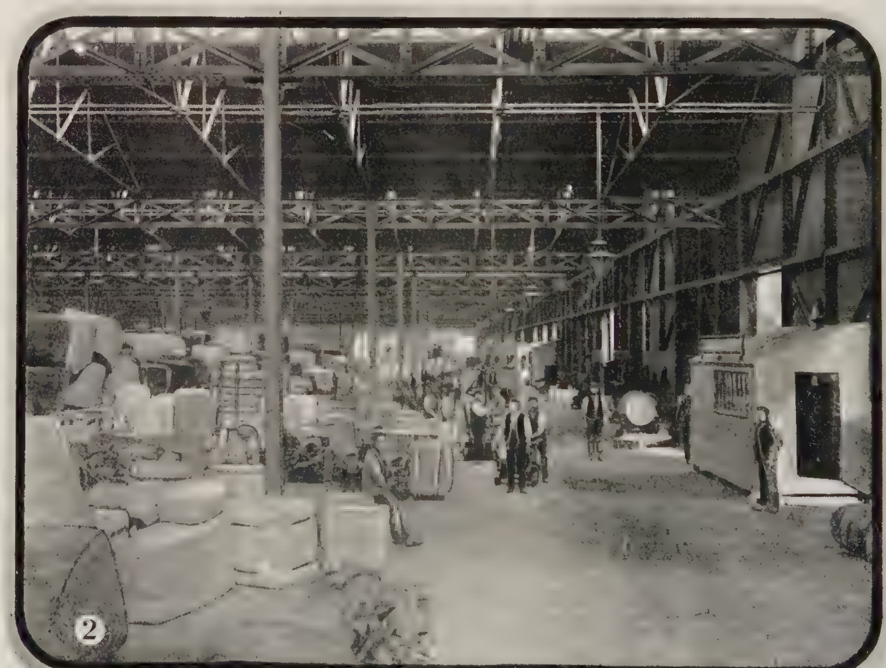
This list, it should be noted, takes no account of the large dock at Immingham, to which reference is made in the next section.

Further, it may be stated that the Quays are over **19,335 feet long,** and have an area of **65,292 square yards,** of which the fish market, **3,316 feet in length,** accounts for **18,710 square yards.** The quays, transit sheds, warehouses, and so forth, at which the vast import and export trade – valued for exports alone at £20,000,000 a year—is dealt with, are supplied with every kind of mechanical device. There are over 50 powerful fixed and portable cranes, with lifting capacities ranging from 5 cwt. to 60 tons, and coal drops and other appliances galore.

Bewilderment seizes the observant spectator as he stands within the vast transit sheds which accommodate the various consignments of goods during their passage from ship to train or *vice versa.* It seems as though samples of all the products of the civilised world surround him, and such is not far short of the actual fact. For amongst the shipments intended for Hamburg, Rotterdam, Antwerp, and a host of Baltic ports to which steamers sail regularly from Grimsby, are large quantities of all descriptions of British manufactured cotton, woollen and linen cloths and yarns, lace, hosiery, hardware, iron, steel, and machinery of all descriptions; while imports are represented by a picturesque medley of manufactures—cotton, wool, leather, timber, paper—together with iron and steel milling and electrical machinery, and a vast quantity of such provisions as butter, eggs, bacon, cheese, fresh and salted meats, fruit, potatoes and vegetables of various kinds. And to these the West Indian traffic, carried by the steamers of the Hamburg-American line, adds ale and porter, rice, biscuits, chemicals and drugs, and who shall say what else.

In 1911, 31,218 vessels, with an aggregate tonnage of 3,499,655, used the port. The warehouses and transit sheds in which this tonnage is dealt with are on a large scale,





GRIMSBY DOCKS.
1.—Grain Store and Bonding Wharves, East Side, Royal Dock.
2.—Export Warehouse, West Side, Royal Dock.

those on the west side of the Royal Dock being 900 feet by 178 feet, covering 160,200 square feet; on the east side of the same dock the transit sheds have an aggregate length of 1,500 feet, the width varying from 48 to 67 feet; the total covered area being 80,000 square feet.

Mention has just been made of Timber and Coal, and it must not be forgotten that in these two classes of traffic alone the business of Grimsby—apart altogether from its fish and general trade—is enormous. Four drops have been erected for the shipment of coal, the exportation of which is increasing yearly. Two of these are in the Royal, and two in the Alexandra Dock, and they are provided with 15 spouts, at which eight vessels can load at one time. At one of the jetties in the Alexandra Dock, however, two Patent Coal Shippers have recently been erected, and these together are capable of shipping 600 tons of coal per hour, thereby increasing to a great extent the facilities in this dock. At the principal drop in the Royal Dock, coal can be shipped at the rate of 350 tons per hour at a single spout. A large coal hoist has also been erected on the west side of the Royal Dock for the bunkering of steamers. In No. 2 Fish Dock there are two hydraulic coal hoists for the purpose of coaling steam fishing vessels.

Reference must be made to the Great Central Company's fleet of steamers plying between Grimsby and the Continent.

The Great Central enjoys the distinction of being the first railway company to obtain authority from Parliament to own seagoing ships. This they succeeded in gaining in 1864, when the line of steamers belonging to the Anglo-French Steamships Company was purchased, as stated above, and services authorised between Grimsby and Hamburg, Rotterdam, Antwerp, Flushing, Lubeck, Stockholm, Copenhagen, Revel, Cronstadt, St. Petersburg, and Konigsberg.

GREAT CENTRAL STEAMSHIPS "CITY OF BRADFORD" AND "NOTTINGHAM."

The first service was to and from Hamburg, which started in 1865, followed in successive years by those to Rotterdam and Antwerp, and these have been regularly continued to the present time.

In 1889 further powers were obtained from Parliament, enabling services to be arranged between Grimsby and Ghent, Amsterdam, Bremerhaven, Stettin, Dantzig, Riga, Gefle, Malmo, Gothenburg, Frederikstad, Drontheim, Esbjerg, and Frederikshavn, communication being thus established with all the principal ports of the North Sea and the Baltic.

The Company's fleet consists of the following steamers:

ss. Immingham	2000	tons.
ss. Marylebone	2000	,,
ss. Accrington	1650	,,
ss. Bury	1650	,,
ss. Dewsbury	1650	,,
ss. Stockport	1650	,,
ss. City of Leeds	1400	,,
ss. City of Bradford	1400	,,
ss. Wrexham	1400	,,
ss. Lincoln	1200	,,
ss. Oldham	1100	,,
ss. Nottingham	1100	,,
ss. Lutterworth	1100	,,
ss. Leicester	1100	,,
ss. Staveley	1100	,,
ss. Ashton	1100	,,

Tenders:

"Marple" and "Chapman."

GRIMSBY DOCKS S.S. SERVICES.

	FROM GRIMSBY	*TO* GRIMSBY	AVERAGE PASSAGE
Great Central Railway, Grimsby.	**HAMBURG** **(Sandthor Quay)** **ROYAL MAIL SERVICE**		
	EVERY WEEK DAY	EVERY WEEK DAY	Thirty hours
	ROTTERDAM **(St. Jobshaven)**		
	TUESDAYS THURSDAYS SATURDAYS	TUESDAYS THURSDAYS SATURDAYS	Twelve hours (Sea)
	ANTWERP **(D'Herbouville Quay)**		
	MONDAYS WEDNESDAYS SATURDAYS	TUESDAYS THURSDAYS SATURDAYS	Twenty hours

☛ A BOAT TRAIN LEAVES BRUSSELS (Nord) at 5.29 p.m., arriving at 6.28 *ANTWERP* (South Quay), whence Passengers are conducted to the Steamer free of charge.

	FROM GRIMSBY	*TO* GRIMSBY	AVERAGE PASSAGE
United S.S. Co., Copenhagen. J. Sutcliffe & Son.	**ESBJERG**		
	MONDAYS THURSDAYS	TUESDAYS FRIDAYS	Thirty hours
T. Wilson, Son, & Co., Ltd., Grimsby.	**GOTHENBURG**		
	SATURDAYS	WEDNESDAYS	Thirty-six hours
	CHRISTIANIA **(Calling at Christiansand)**		
	ALTERNATE SATURDAYS	ALTERNATE SATURDAYS	Forty-eight hours
	MALMO		
	TUESDAYS	THURSDAYS	Sixty hours
	RIGA REGULAR SERVICE DURING THE SEASON (for Merchandise only)		

GRIMSBY DOCKS S.S. SERVICES.—Continued.

	FROM GRIMSBY	*TO* GRIMSBY.	AVERAGE PASSAGE
	DIEPPE		
Worms & Co., Grimsby.	TUESDAYS THURSDAYS SATURDAYS (Merchandise only)	MONDAYS WEDNESDAYS FRIDAYS (Merchandise only)	
	GEFLE		
E. Bannister & Co., Grimsby.	REGULAR SERVICE WHEN THE BALTIC IS OPEN (for Merchandise only)		

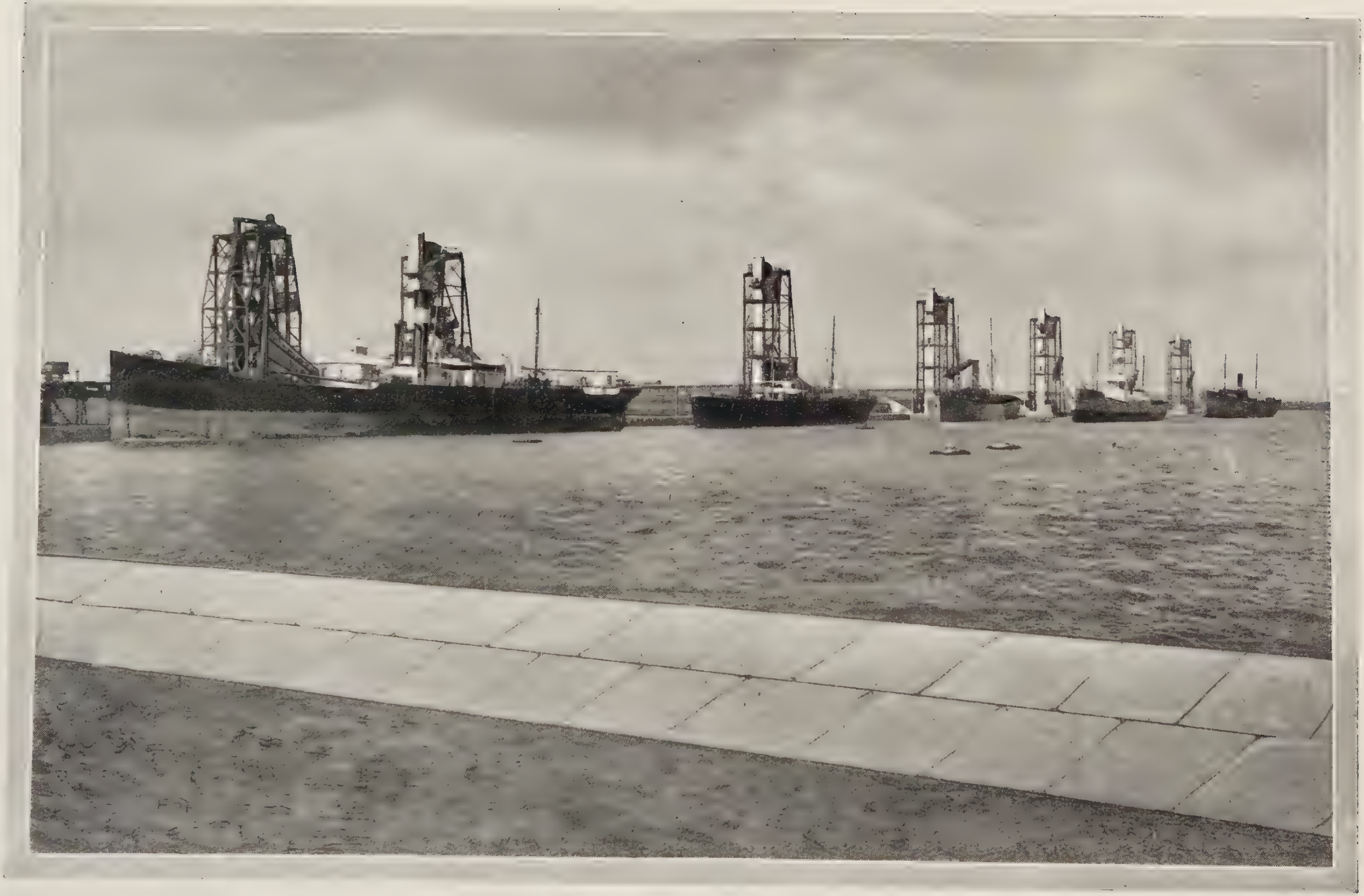
HAMBURG-AMERICAN LINE

J. Sutcliffe & Son, Grimsby.	*FROM* GRIMSBY, TWELVE SAILINGS MONTHLY *(Direct and via Hamburg)* (Merchandise only)	*TO* St. Thomas, Various Ports of Hayti, St. Domingo, Mexico, Venezeula, Cuba, Porto Rico, Spanish Main. *Also via* Colon, Puerto Mexico, *to* North and South Pacific Ports.

P. & O. S. S. Coy.

Escombe McGrath & Co., Grimbsy.	*FROM* GRIMSBY, REGULAR SERVICE *(Via London)* (Cargo only)	*TO* Colombo, Calcutta, Straits, Japan, China, Australia.

The Grimsby "Per Rail" Supplement, containing a list of Offices in Grimsby at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Grimsby, can be obtained free on application to the Portmaster, District Goods Manager, or District Goods Agent, Grimsby Docks, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.



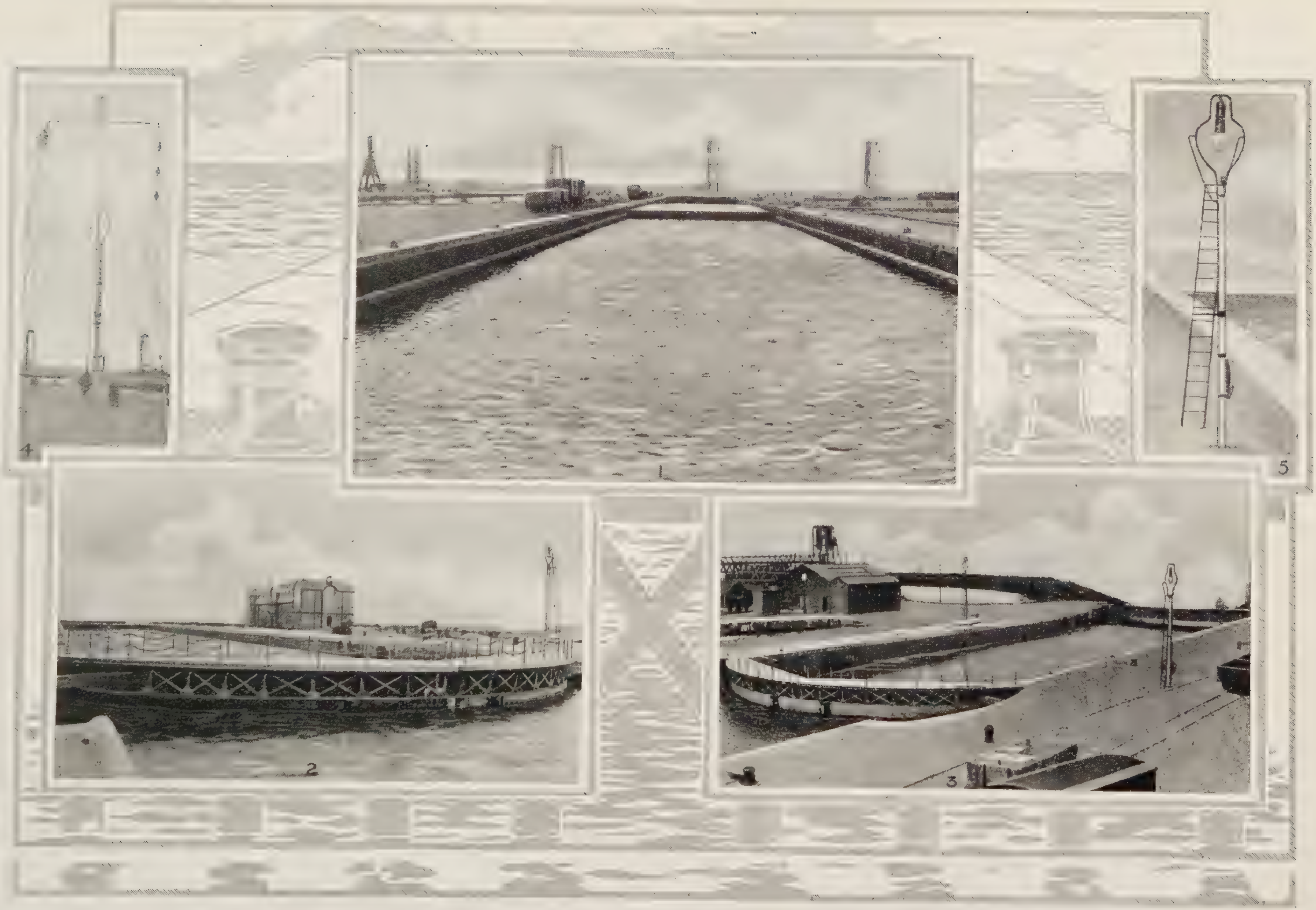
VIEW OF SEVEN HYDRAULIC COAL HOISTS—IMMINGHAM DOCK.

Immingham

England's Latest Port

THIS new East Coast Deep-water Dock was officially opened by His Majesty The King, accompanied by Her Majesty The Queen, on July 22nd, 1912, when The King graciously named it "The King's Dock." Although only six years previous the ceremony of turning the first sod at Immingham was performed by Lady Henderson, wife of the Chairman of the Great Central Railway Company, the idea of constructing a big dock there was actually mooted as long ago as 1873. The trade of Grimsby had, for several decades past, been making phenomenal strides, and it was the progress of that port that inspired the promoters of the new scheme. A well-known civil engineer was instructed to find a suitable site for a new deep-water dock on the Humber, and after an exhaustive survey of the district west of Grimsby, that gentleman pointed to Immingham as the place peculiarly well adapted for such an undertaking.

Those who witnessed the sod-cutting ceremony might well be forgiven if they failed to recognise the place to-day.



IMMINGHAM DOCK.

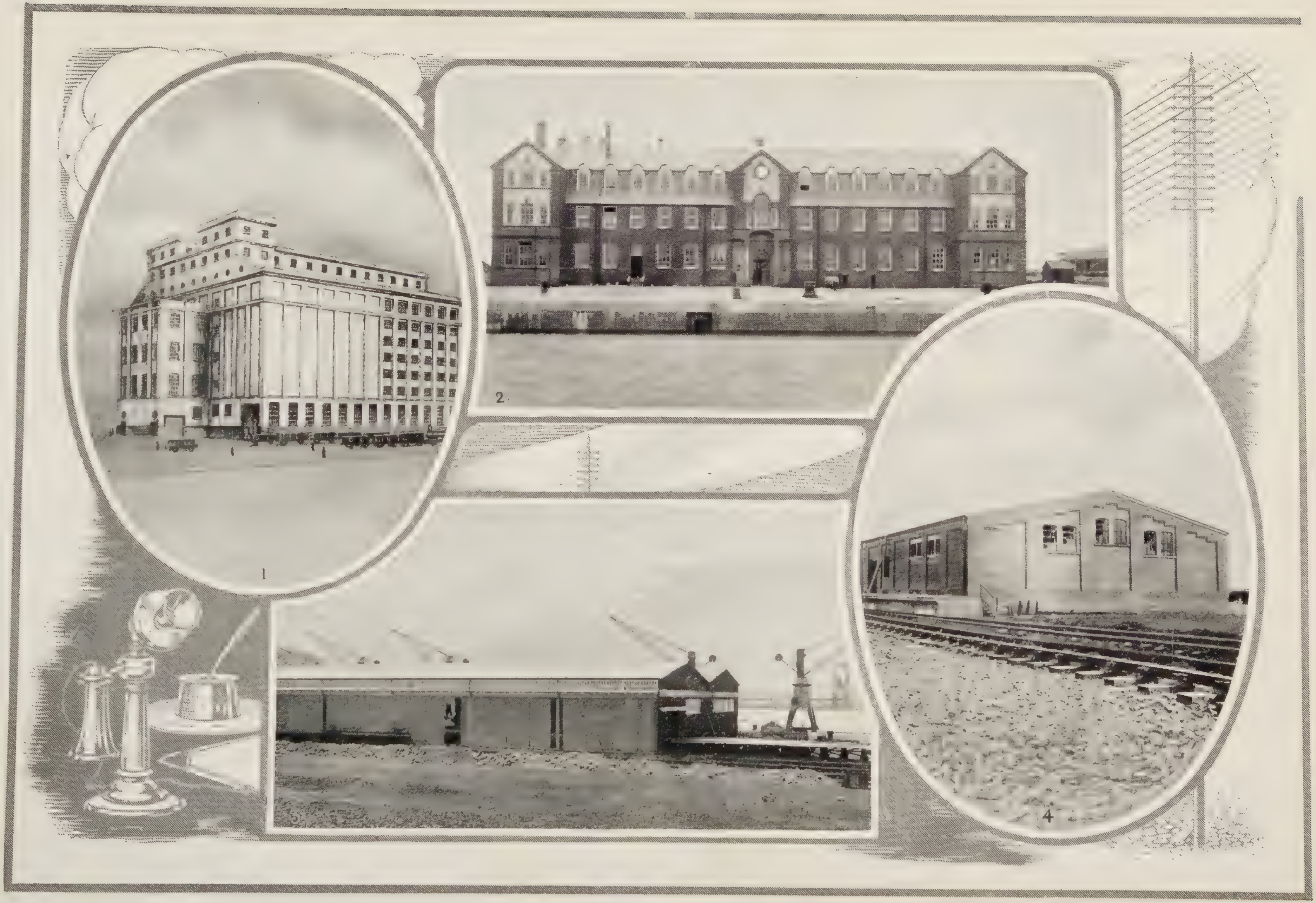
1.—Graving Dock. 2.—Inner Gates of Entrance Lock. 3.—Middle and Outer Gates of Entrance Lock.

What was then a wide stretch of dreary marshland, unbroken save by the marquees which had been erected for the purpose of the function, has now become a huge dock estate, furnished with every modern contrivance for the handling of ships and their cargoes, served by a network of railway lines, and overshadowed by an array of tall coal-hoists which, from the distance, look like gaunt sentinels watching over the newly-created port.

In the natural advantages which it enjoys, Immingham can bear comparison with any seaport in the United Kingdom. To begin with, it is situated on a land-locked harbour. The deep-water channel, which lower down runs midway between the two banks of the Humber, makes here an inward sweep and comes right up to the very dock gates. This latter condition, indeed, was one of the deciding factors when the site was under consideration. Not only has there thus been very little initial dredging required; there is the added advantage that the channel, being a natural one, will have no tendency to silt up.

A vessel can round Spurn Head, steam direct to the Immingham jetties at any state of the tide, and immediately the hawsers are fast can be taking bunker coal at the rate of 700 tons per hour; or, at any state of the tide, the dock can be entered. This is true of no other port on the East Coast. No towing expenses are necessary—Pilotage and Conservancy dues are lower than at any competitive dock on the Humber—and taken altogether the charges to ship-owners and to shippers are so low that Immingham can compete successfully with any other port in England.

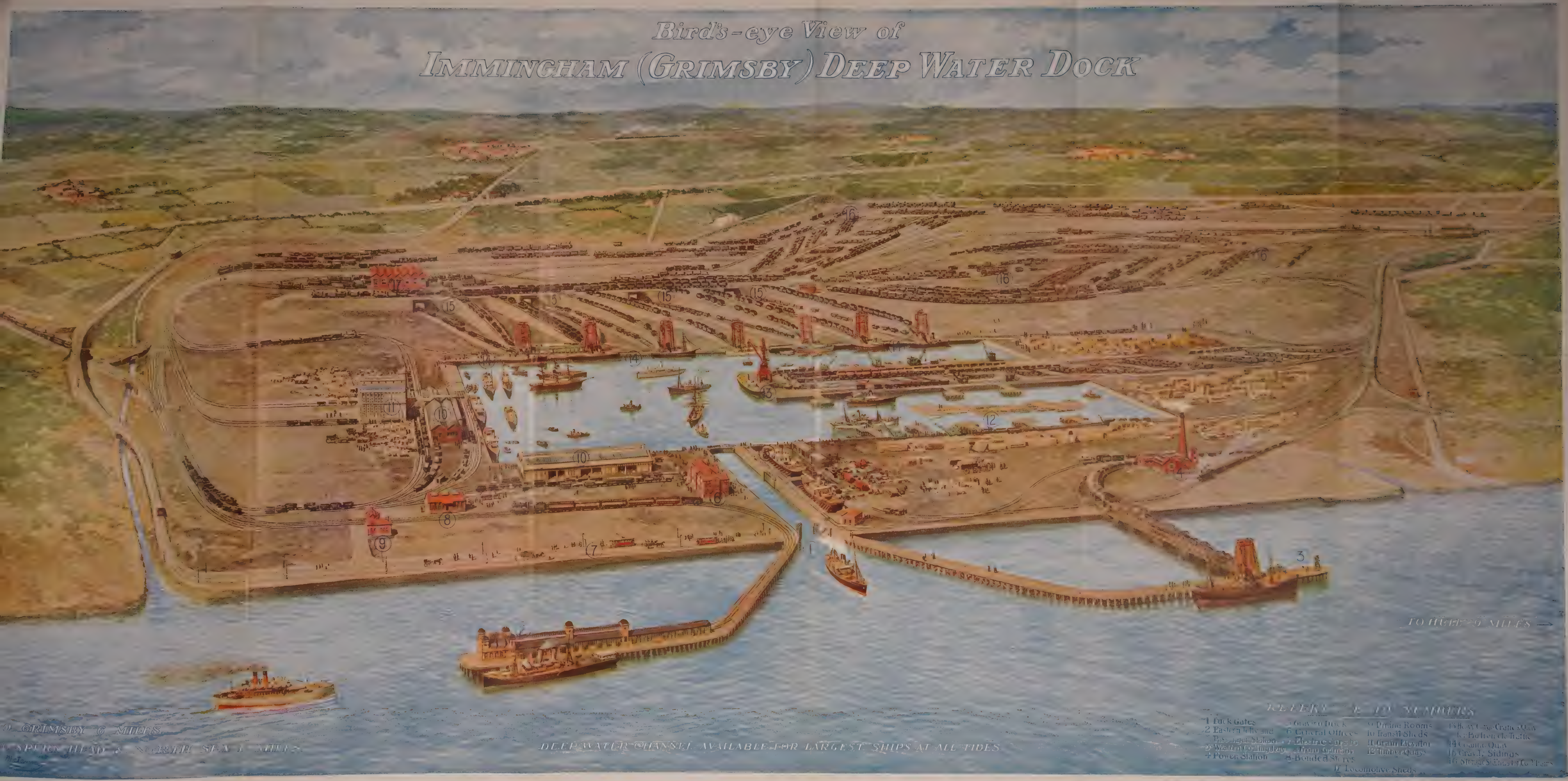
And now, in order to gain a good idea as to the third feature which renders Immingham so eminently well adapted to the purpose to which it has been put, let the reader take a map of the district, place the palm of his hand on



IMMINGHAM DOCK.

1.—Granary. 2.—General Offices. 3.—Transit Shed. 4.—Bonded Stores.

Bird's-eye View of
IMMINGHAM (GRIMSBY) DEEP WATER DOCK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TO HULL 9 MILES →
O GRIMSBY 6 MILES
SPURN HEAD & NORTH SEA [illegible] MILES
DEEP WATER CHANNEL AVAILABLE FOR LARGEST SHIPS AT ALL TIDES

REFERENCE TO NUMBERS

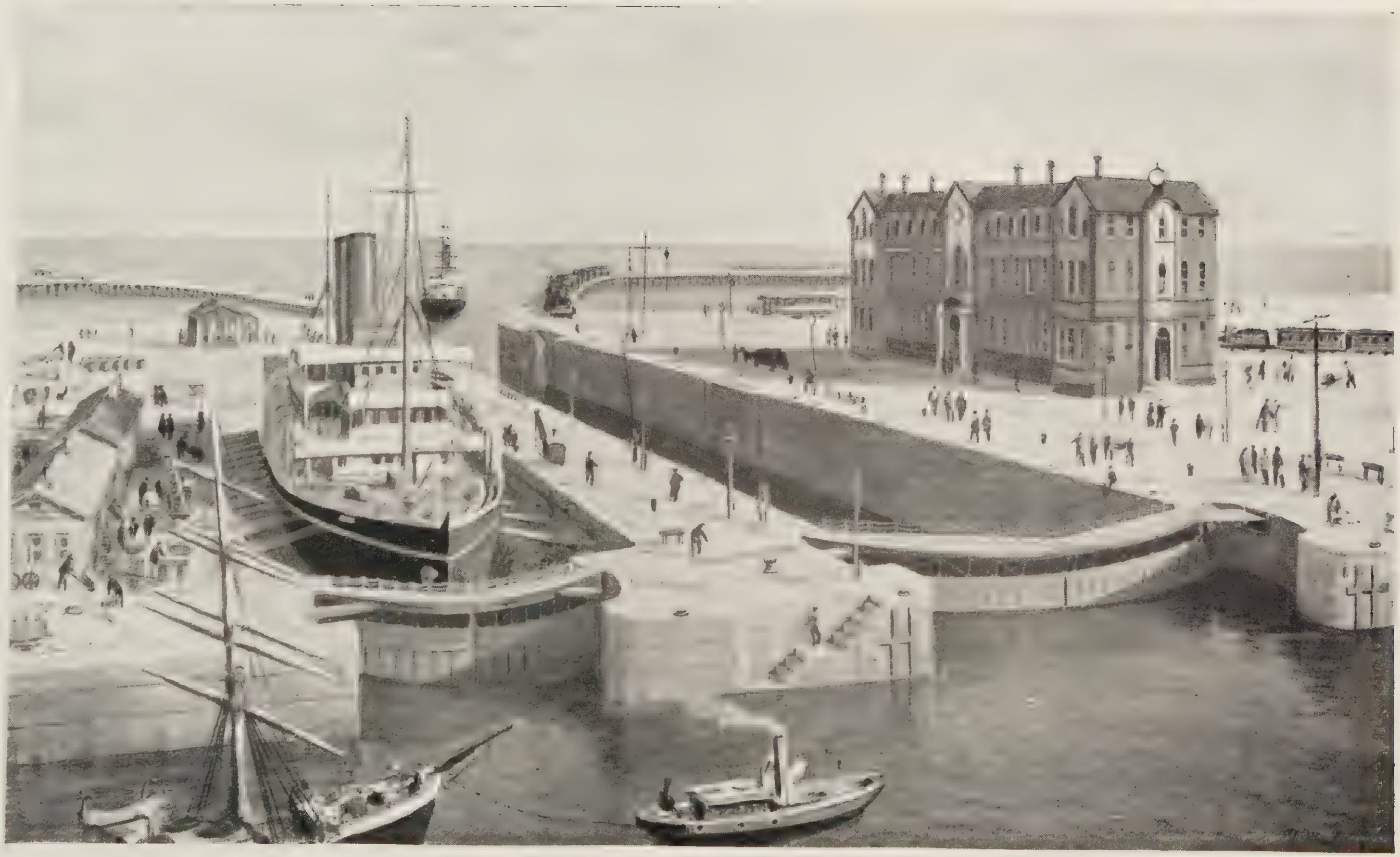
1 Lock Gates
2 Eastern Jetty and Passenger Station
3 Western Coaling Jetty
4 Power Station
5 Graving Dock
6 General Offices
7 Electric Cars to & from Grimsby
8 Bonded Stores
9 Dining Rooms
10 Transit Sheds
11 Grain Elevator
12 Timber Quays
13 Heavy Cargo Crane & Quay for [illegible] Traffic
14 Coaling Quay
15 Gravity Sidings
16 Storage Sidings for Coal Trains
17 Locomotive Sheds

the site of the dock, and spread his thumb and fingers out fanwise over the surrounding country. He will find each finger tip pointing to some great industrial centre which in the future will be drawing its supplies and sending its products through the new entrepôt on the Humber.

The Immingham Dock, it should be noted, is the deepest on the East Coast. Its depth ranges from 30 to 35 feet in the dock basin, and it can thus cater for practically any vessel afloat. The modern cargo boat, however, is increasing so rapidly in size that the Great Central Directors have deemed it advisable to make full provision for meeting any demands which may arise.

The Dock, as it now stands, consists of a square basin with two long arms, running parallel to one another, on the western side; the total water-space, exclusive of locks, amounts to 45 acres, and the full length of quayage to 5,250ft.; figures which will convey a better idea to the mind of the reader than can any flowers of speech. The immediate needs of the place, however, have not been allowed to fix the limitations in the matter of the dock's dimensions. With an eye to the future, the proprietors have so planned things that a very considerable addition to the area can be made whenever occasion demands it. In other words, the ground on either side of the granary which stands at the eastern end of the dock has been left open for possible extensions, and thus at any time when it becomes necessary two more arms can be readily constructed, each of them running to about 1,250ft. in length and 375ft. in breadth. Those already in existence have a length of 1,250ft., and a width of 375ft.

The entrance lock, too, is constructed on ample lines. It has a length of 840ft., a breadth of 90ft., and a depth on sill at high water of spring tides of 47ft., while

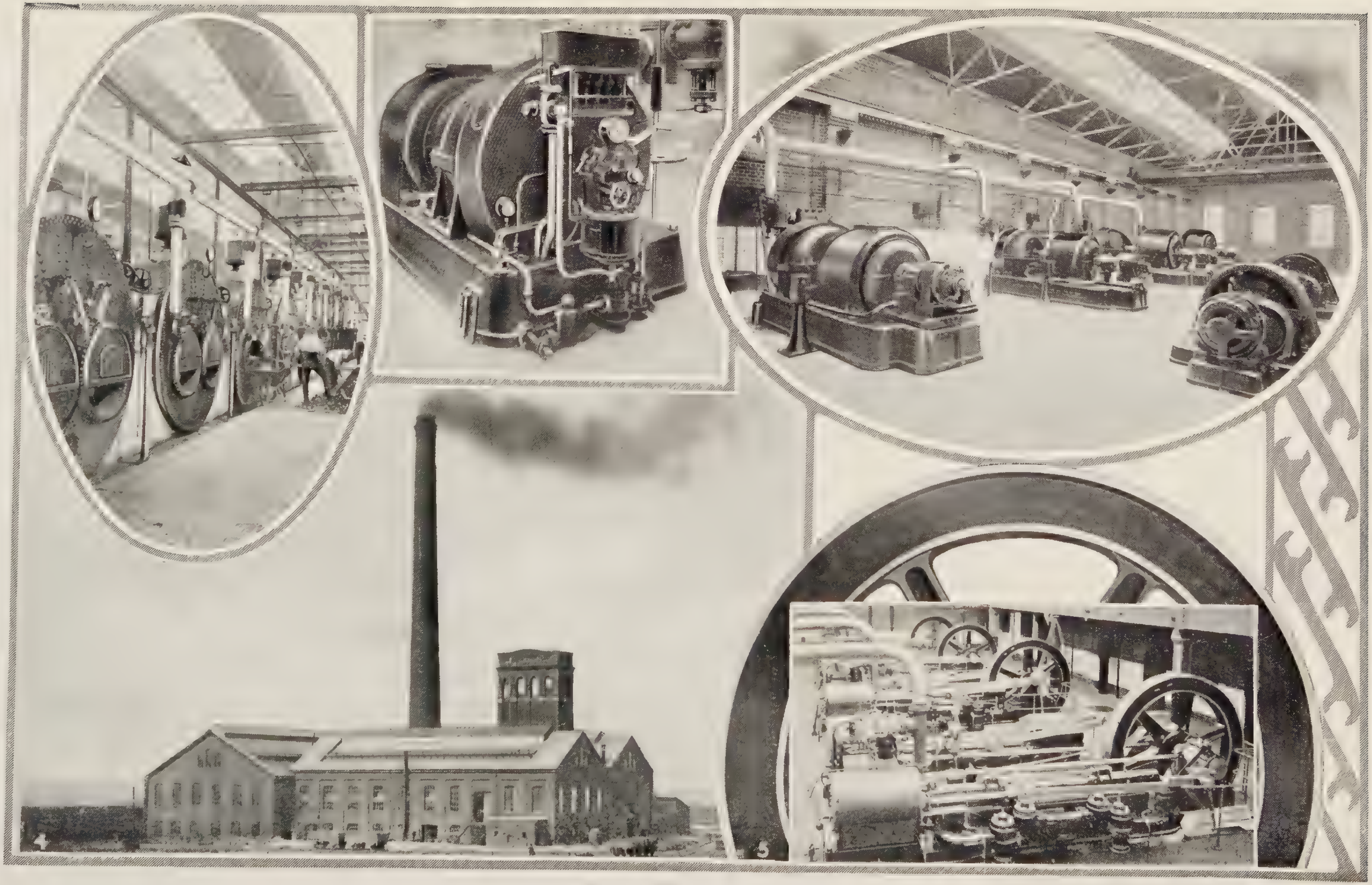


VIEW OF GRAVING DOCK, ENTRANCE LOCK, AND GENERAL OFFICES—IMMINGHAM DOCK.

the depth at low water of spring tides is 27ft. 6in. It will thus be able to admit any vessel which is likely to be seen on the East Coast for generations to come.

There are three sets of gates, of which the dimensions are as follows:—Outer gates: height 56ft. 6in., and width (of each leaf) 53ft. 6in.; Middle gates: height 54ft. 6in., width (each leaf) 53ft. 6in.; Inner gates: height 54ft. 6in., width (each leaf) 53ft. 6in. These figures, it may be added, convey but a poor impression of the huge proportions of these majestic portals. To get a real idea of the size of the structures the reader would need to have seen them, as the writer did, when the entrance lock was still in course of construction. The spectacle which they presented when visible from base to summit reminded one of a series of tall cliffs. Indeed, the visitor who sees Immingham to-day misses much in the way of picturesqueness which was there only a short time ago. Now, this great piece of engineering work is trim and complete. Its very size, of course, compels admiration, and to the eye of the expert there are points almost innumerable which are worthy of attention.

In the making of the dock some 3,500,000 cubic yards of earth have been excavated, and this enormous mass of material has been used for raising the elevation of the surrounding land to the extent of about five feet above its original level. Close upon 100 miles of temporary railway track were laid down by the contractors, while 30 locomotives and nearly 1,500 trucks were employed, and at one time there were no fewer than 10 steam navvies at work. It will readily be understood that where operations of this nature are in progress, pumping plays a considerable part, and as a matter of fact there were 39 pumps on the scene, the total capacity of these appliances being tremendous.



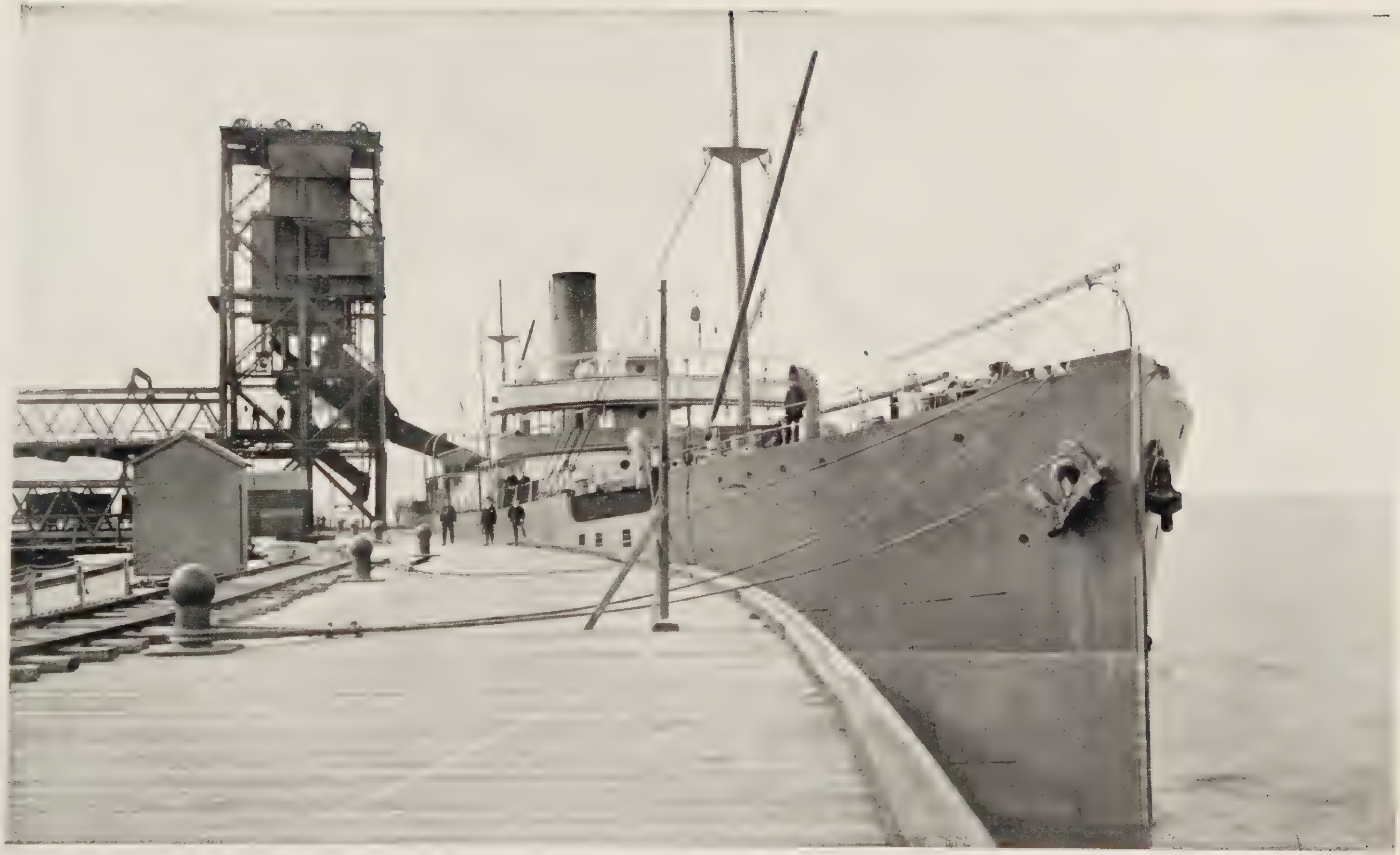
IMMINGHAM DOCK.

1.—Battery of Nine Lancashire Boilers. 2.—2,500 K.W. Steam Turbine and Electric Generator. 3.—Electrical Power Plant. 4.—Exterior of Power House. 5.—Horizontal Compound Surface Condensing Hydraulic Engines.

On one occasion, for instance, when a spell of wet weather had been experienced, no less than 6,700 tons of water were pumped out of the workings in the space of 16 hours. In dredging out the channel at the entrance to the lock about 2,500,000 cubic yards of mud have been raised, and most of this material now lies on stretches of land in the neighbourhood of the dock, whither it was conveyed through twelve-inch iron pipes.

Of the Materials used in the construction of the dock much might be written, for they have come from all over the world. Australia, America, and Russia have, between them, provided most of the timber—jarrah wood, oak, elm, and pitchpine being the chief varieties employed. Sweden has contributed the granite of which the copings and the lock quoins have been constructed, while the gravel—of which vast quantities have been used—has come, partly from the south coast of England and partly from Sunderland. Cement, of course, bulks very largely in the work of dock construction, and the 100,000 tons or so which have gone to the making of Immingham were brought from the Medway. Of brickwork there is about 45,000 cubic yards in the dock and its adjuncts, while the quantity of concrete runs into something like 400,000 cubic yards.

An outstanding feature of the estate is the big Power House which has been erected near the western jetty, and which supplies the hydraulic force for the whole of the machinery, as well as the electrical current to illuminate the entire dock. Here, everything is on a titanic scale. For providing the hydraulic power wherewith to work the coal hoists, cranes, capstans, etc., there are on one side of the house four pairs of compound surface-condensing steam pumping engines, each of which can deliver 700 gallons per minute at a pressure of 800 lbs. to the square inch.



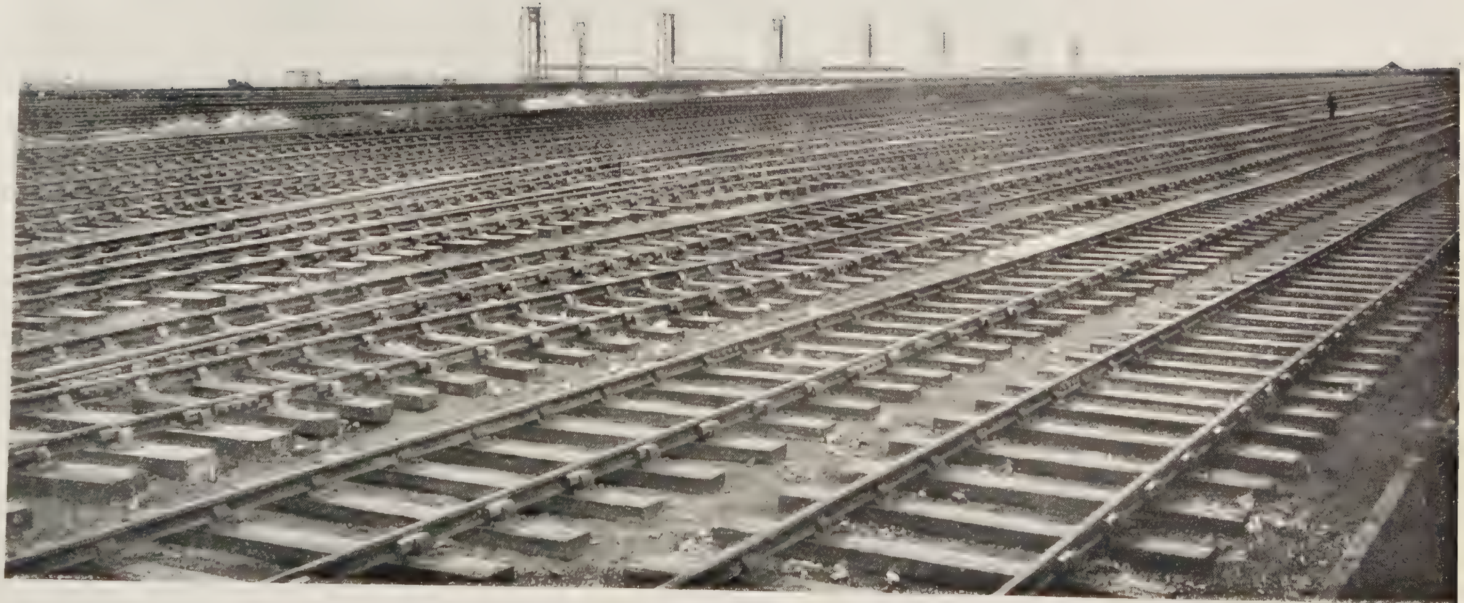
WESTERN COALING JETTY WITH INDEPENDENT COALING HOIST FOR BUNKERING VESSELS AT ANY STATE OF THE TIDE.

Steel tubes, made by the Mannesmann solid drawn process, convey the pressure-water round to the machinery, while the return piping is constructed of the same material. The pumping engines themselves are provided with two deadweight accumulators, each with a plunger of twenty-two inch diameter. These appliances automatically control the starting or stopping of the main engines, and are supplemented by two similar accumulators stationed at the south side of the dock.

On the other side of the house is installed the Electrical Generating Machinery; four compact sets of steam turbine-driven alternators with a total capacity of 2,500 kilowatts, generating electrical energy at a pressure of 6,600 volts, which is utilised not only for the purpose of lighting and power at Immingham—distributed from three sub-stations—but also, by means of a high tension transmission line, for the lighting and power devices at Grimsby Docks, and for operating the Electric Light Railway connecting the two ports.

It is from the power station, where nine two-flued boilers of the "Lancashire" type supply steam for the engines and turbines, that the hydraulic machines which operate the gigantic gates of the entrance lock obtain their energy; and the mention of this fact reminds us that we strayed away from that section of the estate without referring to one especially notable feature connected with it.

We allude to the two long jetties which spring out one on either side of the entrance, curving round about midway in order to run parallel to the river. One of these jetties, that on the eastern side, is intended as a landing-stage for passengers, while the other—to which reference is made elsewhere—is being used for the shipment of bunker and cargo coal. The presence of these structures very



SECTION OF SIDING ACCOMMODATION AT IMMINGHAM DOCK.

greatly facilitates the operation of docking vessels at Immingham. Forming, as they do, a sort of gigantic "V"—or one might almost call it a huge funnel—they allow of a large area of still water just outside the lock entrance; there will thus be none of those difficulties which are experienced when a ship which is being docked has the full force of a strong stream pressing upon her quarter.

Running out of the main dock, and so situated that vessels can enter with absolute ease, is a magnificent Graving Dock with Ship, Engine and Boiler Repairing accommodation. The Dry Dock has a length of 740ft., width of 56ft., and depth of 22ft. on blocks. Deck, Engine and Cabin Stores, Oils, Paints, etc., are supplied at the lowest prices.

The Cranage Installation throughout the estate is well worthy of attention, by reason of its completeness and efficiency. On the north-eastern quay there are six 2-ton double-power luffing cranes and one 10-ton crane of the same type; a similar equipment is also on the eastern quay. On the western quay there is a 50-ton crane with luffing jib, and on the northern wall of the south-western arm ten 3-ton and two 5-ton cranes, all of the double-power gantry type, whilst in the transit sheds a number of electric cranes are installed. These appliances, of course, are for general purposes.

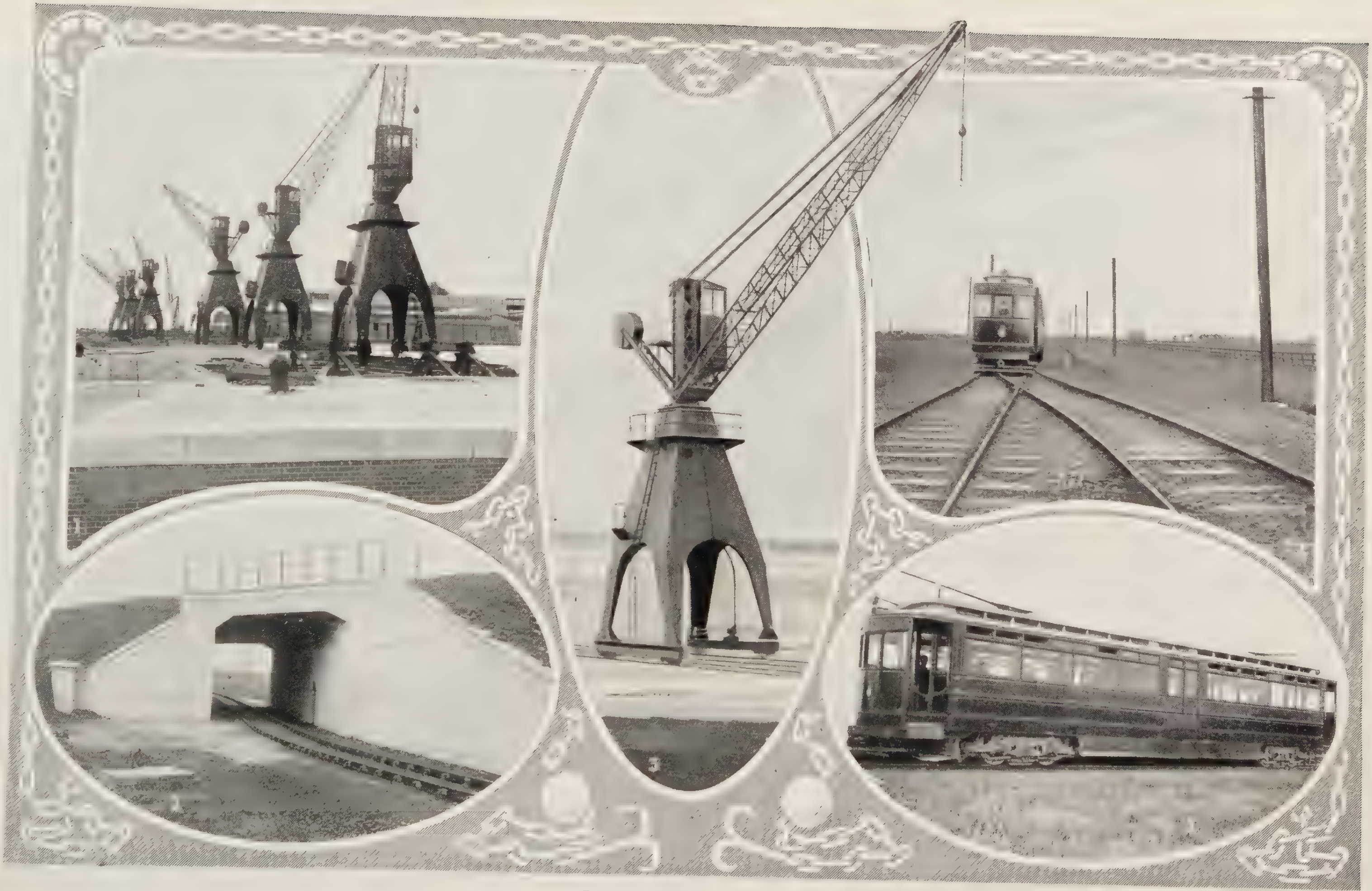
The Coal-handling Plant, for the shipment of Coal, forms one of the principal items in connection with the new port, and is sufficient to cope with a huge traffic. In all, eight coal hoists have been erected, seven of them standing in a row on the south side of the dock, while the eighth is situated on the jetty to the westward of the entrance lock. The method of working is simplicity itself. Each hoist is served by a double group of lines of rails, with an inward and outward gradient. On one group the loaded wagons run down to the ship's side, and are there lifted and tipped by hydraulic machinery. To avoid the breakage of coal, which injures its value, each hoist has a system of radial extension shoots which slide the coal into the hold of the vessel. The coal need not be dropped more than a foot or two. The wagons are then transferred to the other set of metals, and so return automatically to the spot where the engine is waiting to pick them up. The whole business looks so ridiculously easy. Down comes the heavy wagon with its cargo of "black diamonds," and almost before one realises that it has arrived, it is borne aloft and tipped. Away go its contents in the ship's hold, and a moment later it is running back again down the slope. The hydraulic engineer and the force of gravity have, between them, accomplished what, not so very many years ago, would have been regarded as a miracle. The isolated hoist on the jetty is intended mainly for bunkering purposes, those in the dock itself being devoted to the shipment of coal cargoes. Each hoist is capable of dealing with some 700 tons per hour, and one of them—No. 7—is movable, an arrangement which renders it possible to work two holds of a vessel simultaneously.

No matter how great the traffic may be, there can be no possibility of delay, for the accommodation provided for loaded trucks is enormous. Each separate hoist, for instance, is furnished with a group of eight sidings, and each of these sidings can take 40 ten or fifteen-ton wagons, or a total of 320 wagons for every hoist, and of 2,560 for the entire group. This, however, represents but a small fraction of the whole of the accommodation, for in the storage and reception sidings close at hand no fewer than 8,120 wagons can find a temporary resting place, the full capacity being thus sufficient for over 10,600 wagons, carrying, in all, from 105,000 to 175,000 tons of coal.

Ample provision, too, has been made for the quick and easy handling of empties, and there is thus no danger of congestion, even at the very busiest of times. Again, for the incoming trains there are reception roads communicating direct with the storage sidings, an arrangement which will obviate a good deal of shunting work. In fine, the entire system is such that the operation of shipping coal at Immingham can be conducted with clockwork-like precision and regularity, a condition which is one of no slight importance when we consider the dimensions which this particular trade is likely to attain at the new Lincolnshire port.

Immingham comes into the arena equipped with every advantage that skill and experience can devise. It is not hampered with old limitations and inadequacies; it does not need to be "developed" or "improved." It will not have to toil laboriously along on the heels of its advancing trade; it will lead the way and the trade will follow. We have stated that *each* of the eight coal hoists which have been erected at Immingham can deal with 700 tons per hour. Let the reader consider what this means. It means that in a working day of only ten hours the port of Immingham could send away 56,000 tons of coal.

The resources, indeed, are well-nigh boundless. Not only are there the collieries of South Yorkshire, Derbyshire, and Nottinghamshire to draw upon; there is also the great coal-field which extends under practically the whole area of North-east Lincolnshire. But even leaving this last named source out of consideration for the moment, the other three may be reckoned on to keep the Immingham



IMMINGHAM DOCK.

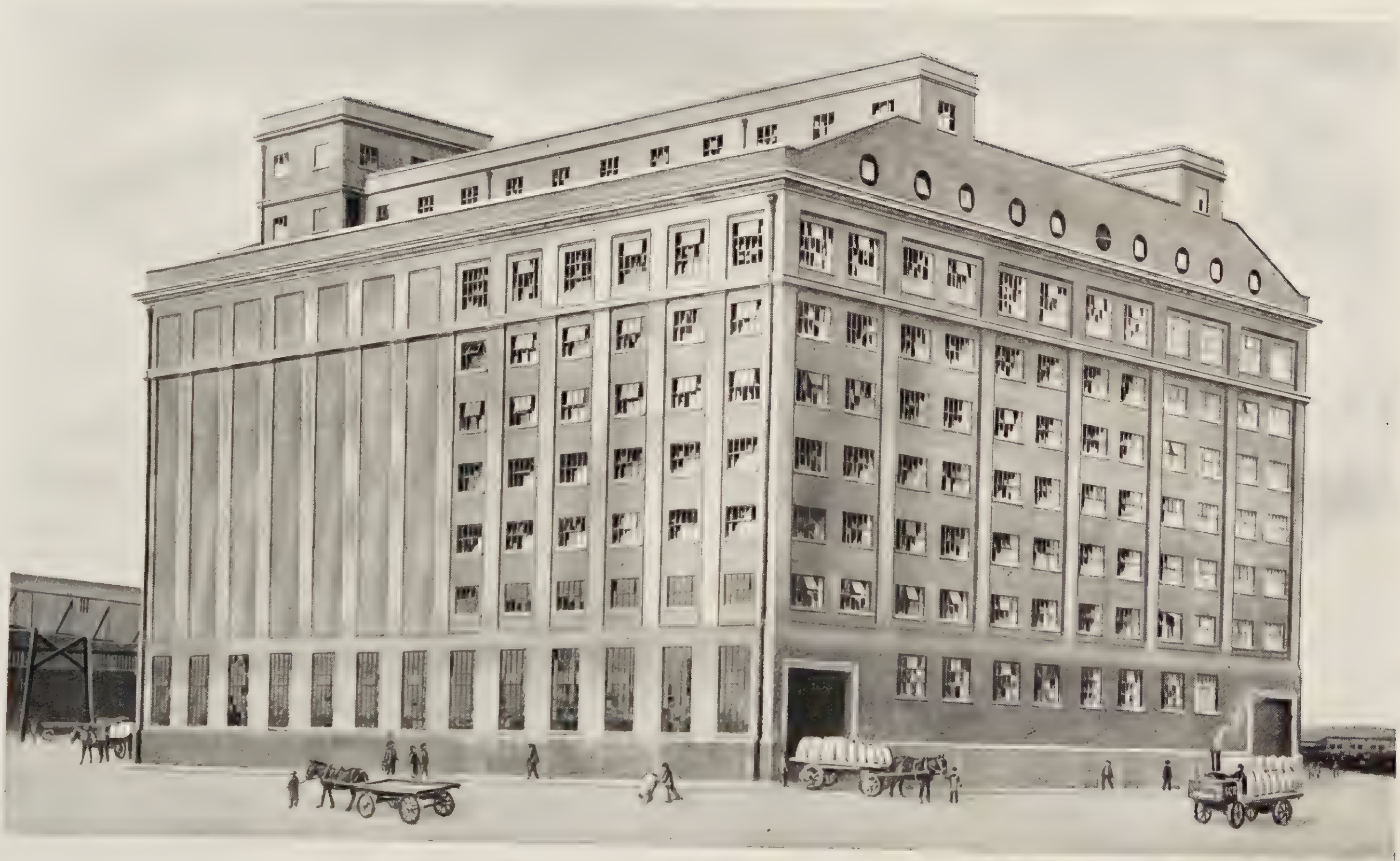
1.—Some of the Cranes on North Quay. 2.—Ferro-Concrete Bridge. 3.—Movable Derricking Hydraulic Double-powered Crane.
4.—Electric Railway Track. 5.—Electric Railway Car.

coal-hoists busy. Between them they contain over six hundred collieries, with an aggregate annual output of upwards of seventy million tons. And all this mass of material, be it noted, is raised within easy reach of the new dock.

Now let us turn to another class of trade which will certainly bulk largely in the returns, *i.e.*, Timber Imports. A glance at the plan of the new dock estate will show that the Great Central management have made generous provision for meeting the demands of this type of traffic. The North-western arm of the dock, in fact, forms a huge timber pond; on the land adjoining is a timber yard of ample area, and five 30 cwt. steam cranes each capable of travelling at the rate of 600 feet per minute.

As the accommodation is laid out on generous lines, the result must inevitably be that the port will in the course of time become one of the chief timber importing centres of the country.

While on the subject we must not overlook the great possibilities of the Wood-Pulp Trade. With the ever-increasing demand for paper, there can be no question as to the fact that new mills will rapidly spring up, and in the district which surrounds the Immingham dock we find a locality which seems to have been specially designed by Nature for this class of industry. There is a plentiful supply of suitable water; there is coal in the immediate neighbourhood. Add to these factors the perfect system of railway communication with all the great centres of population, and it at once becomes evident that Immingham is destined to play a leading part in the importation of wood-pulp. Already the Paper Mills are doing a big business in the vicinity, and with the advent of better facilities, other undertakings of a similar nature are certain,



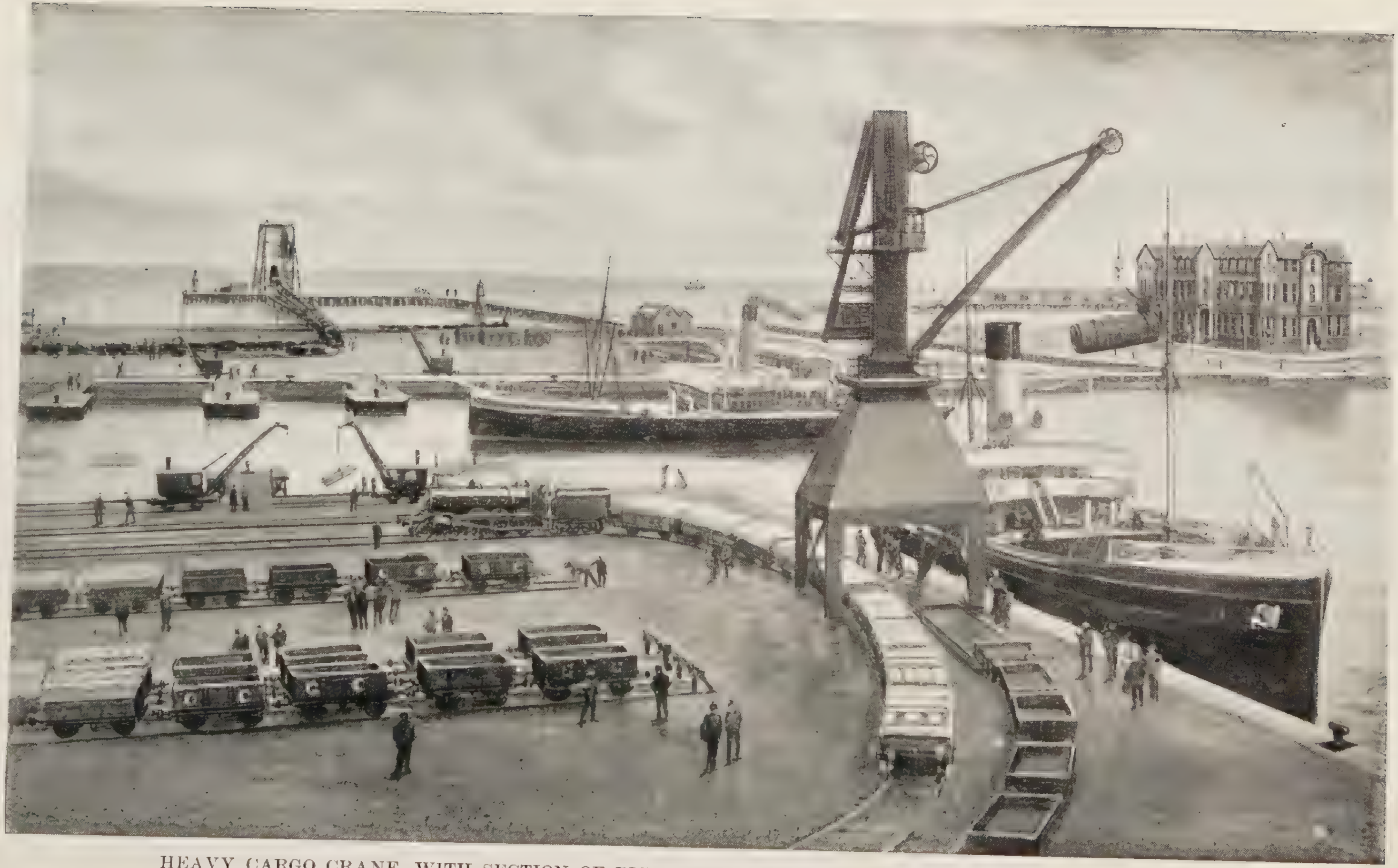
GRAIN SILOS AND WAREHOUSES, IMMINGHAM DOCK.

in the natural sequence of events, to be brought into being.

The Grain trade is another factor which has received special attention at the hands of the Great Central directorate. At the east end of the dock there is a huge granary with elevator (capacity, 15,000 tons), and automatic weighing machines of the very latest type, and it is only reasonable to conclude that flour-milling will become one of the leading industries of the district in the very near future.

Again, there is a vast iron-ore field within twenty miles of the port, and special facilities will be provided for the manufacture of pig iron, steel bars, rails, &c. Indeed, one does not need to prophesy in this connection, for quite a number of big firms are already established in the near neighbourhood.

It is, of course, well recognised that an adequate system of railway communication is essential in a case like this, and for the evidence as to the attention which has been paid to the probable requirements in this direction we must again refer the reader to the map. He will find there, to begin with, that the dock has been linked up with the Great Central main line, the junctions being effected at Ulceby and Goxhill. From this latter point, too, a direct line runs straight across to New Holland, bisecting the area which is awaiting development, while from Ulceby another line runs along the valley of the Trent to Frodingham, where it connects with that to Leeds, Bradford, and other industrial centres in Yorkshire, &c. Last, but not least, the line from Immingham to New Holland gives quick and direct communication with Hull. We say "not least" with good reason, for it is here, perhaps, that the greatest possibilities of all are to be found. Right along the south bank of the Humber, there is a stretch of land

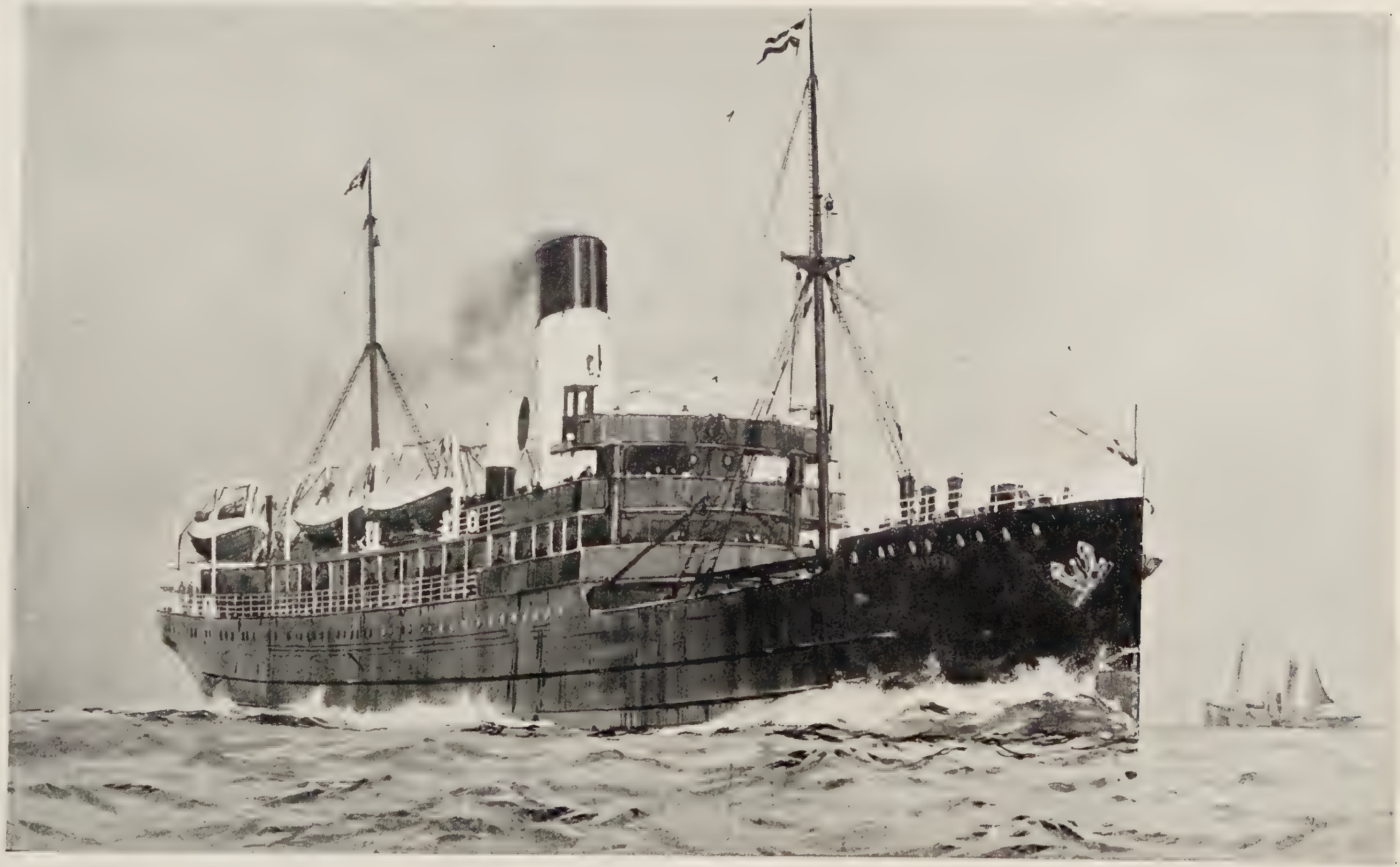


HEAVY CARGO CRANE, WITH SECTION OF PIG IRON, &c., QUAY AND TIMBER POND—IMMINGHAM DOCK.

which is exceptionally well adapted for new works. Any firm starting operations on one of the many sites located there can have its own pier with deep water alongside, while a short railway siding will give connection with the Great Central system. Opportunities of this nature are rare enough nowadays, when the land along the waterfront at every old-established seaport is so jealously held by those who are already in possession. Only in the case of an absolutely new port could such a condition obtain, and it is not likely to remain very long in evidence at Immingham.

Still another advantage is to be found in the fact that there is a plentiful supply of building material to be had in the neighbourhood, and that brick earth is at hand in great quantities. The building trade, by the way, may look forward to a big boom in this part of the world, and those engaged in it will therefore be interested to learn that there is plenty of good labour to be had.

In this connection, a fortune must await the man who is first in the field, for, just as the dock is providing openings for new industrial concerns, so will the arrival of each one of those undertakings provide work galore for the builder. Hardly ever, perhaps, in the history of this country have such opportunities been furnished for men of enterprise. It is not as if some existing seaport were being extended and opened out. When that sort of thing happens there are people on the spot, ready and able to take advantage of the situation, but here, at Immingham, the land lies open for the first comer. Until the Great Central Railway took it over and began to construct its dock on it the place was practically a wilderness. The potentialities were there, but they resembled an installation of machinery which has not yet received the vivifying steam or electricity. They existed, but they were inert.



GREAT CENTRAL RAILWAY COMPANY'S NEW SALOON STEAMER "BURY."

Now the driving force has been applied, and the whole district is quickening into life.

If any doubt be felt as to the future of Immingham a glance at the history of Grimsby must effectually dispose of it. Comparisons, the old "saw" tells us, are odious, but there are occasions upon which they are remarkably convincing, and in this particular instance they can be applied with singular aptness. Here on the Humber we have the case of two seaports which are practically sisters. A distance of barely five miles separates one from the other; they are under the same control; are connected by a frequent service of quick running electric cars; and they have every feature in common, save that the new one possesses possibilities of almost infinite expansion. Therefore, if Grimsby has flourished, the only logical conclusion to arrive at is that Immingham must flourish too.

As we state elsewhere, one of the jetties at the entrance to the lock is to be devoted entirely to Passenger business, and we may rely on it that this class of traffic will figure very largely in the annual returns. As a "jumping-off" place for the Continent, Immingham can defy competition so far as traffic from the Midlands, North of England, and Scotland is concerned, while it should share very largely in the tide of Continental steerage passengers which flows through this country *en route* for America.

Again, with regard to oversea traffic in its wider sense, the instance of Hull may be cited as a fair criterion whereby to estimate the prospects of Immingham. From the Yorkshire port there are regular sailings to practically every port of the world. Steamers run thence to Adelaide, Melbourne, Sydney, and Newcastle, N.S.W.; to Boston and New York; to Ports in Brazil and Argentina; to

Montreal; to Alexandria and the East; to the Black Sea; to the West Indies and Mexico; and to China and Japan. These services, be it noted, are all regular ones, but in addition there is a vast amount of what, for want of a better word, one might call "tramp or casual business." If Hull, then, has been able to acquire such a connection as this, Immingham may look with confidence for a like amount of success, for there is no advantage possessed by the older port which is not also a feature of the new one, and this is borne out by the fact that within a few weeks of the opening of the dock regular sailings were established to all the principal ports in China, the Straits, Japan, Australia, India, and the Suez Ports.

It is as a potential influence in bringing about the erection of new works and factories that this Humber port must forcibly arrest one's attention. To-day, the land is fallow. What sort of a crop, one wonders, will it be bearing in ten years time? The old saying tells us that it is dangerous to prophesy unless one knows, but in a case like this it is surely safe to venture on something in the nature of a forecast. Here, on the shores of the Humber, with a deep water channel running right up to it from the sea, is a huge dock replete with every modern contrivance for the handling of merchandise. The land all around it is level and open: admirably adapted, in fact, for the erection of factories: while to make matters complete in this connection there is an ample supply of labour. There is direct railway communication with all the great centres, North, West, and South: and if any extension of the service is needed the mere fact that the Dock is the property of a railway company is sufficient guarantee that such extension will be forthcoming. Again, there is water communication *via* the Humber with the canal systems which stretch out to such places as Leeds, Bradford, Sheffield, Derby, and Nottingham. Surely, with these conditions in existence, the word "prophesy" is scarcely an apt one. We ought to regard ourselves as exercising the faculty of intelligent anticipation when we look forward to the time when the neighbourhood will be dotted all over with factory chimneys; when the hitherto barren plain will be peopled with colonies of thriving artisans, and the story of the rise of Immingham will be told as one of the romances of industrial England.

And now, in conclusion, let us briefly sum up the advantages which Immingham enjoys in order that the reader may have them before him at a glance. To begin with, the Port stands in a sheltered harbour, with a deep-water channel running right up to its gates. Secondly, it is situated in a district rich in coal and ironstone. Thirdly, it is the property of one of the great railway companies, and has a perfect system of rail communication with all the great centres of population throughout the country. Furthermore—and this is by no means the least important point—the company which owns it has had long experience in dock management, and has raised the other port under its control to a position of great prosperity. Immingham will have the advantage of a management tried and proved by many years of success, and will be free of the disadvantages attached to old or out-of-date equipment or methods. Then again, there is ready communication, via the Humber, between Immingham and the canal systems of the North-Eastern counties. The new Dock itself is perfectly planned, and is equipped with every possible appliance for the quick handling of cargoes. The tracks throughout the dock property are operated by the latest and most approved electric power signalling apparatus. Telephone communication links the Dock instantly with any of the great or small industrial and business centres throughout the country; and, finally, there is every imaginable facility for the establishment of the many new industries which must inevitably arise to meet the demand which is being created by the opening of the Port. Land suitable for the erection of factories or works can be either purchased outright, or secured on a long or short lease, and a register of available sites has been compiled for the assistance of those who wish to profit by the opportunities which are unfolding themselves on the Lincolnshire bank of the Humber.

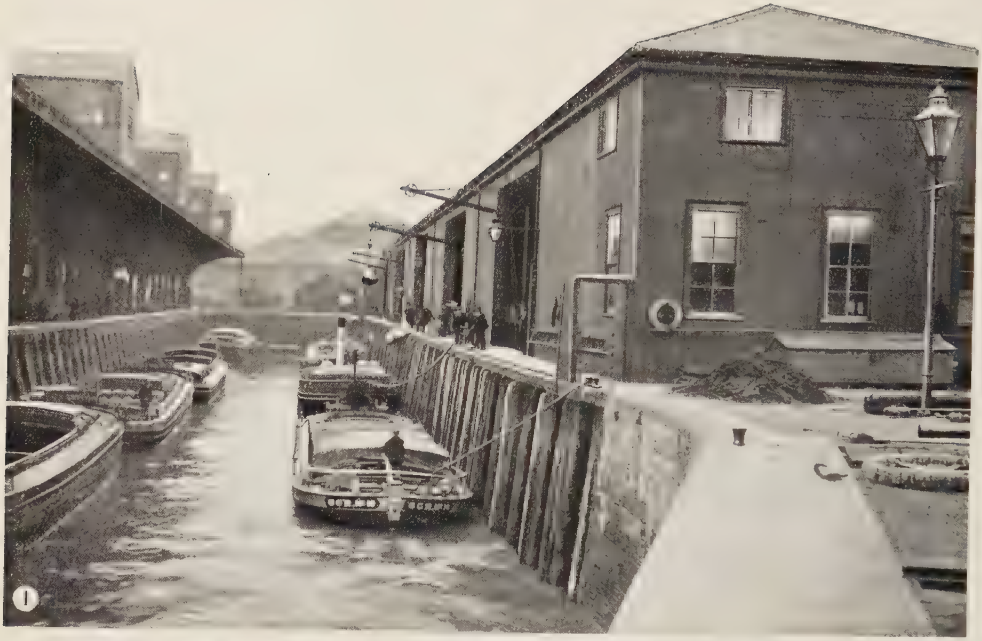
The Immingham "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Immingham, can be obtained free on application to the Portmaster, or District Goods Manager, Immingham Dock, Lincolnshire, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

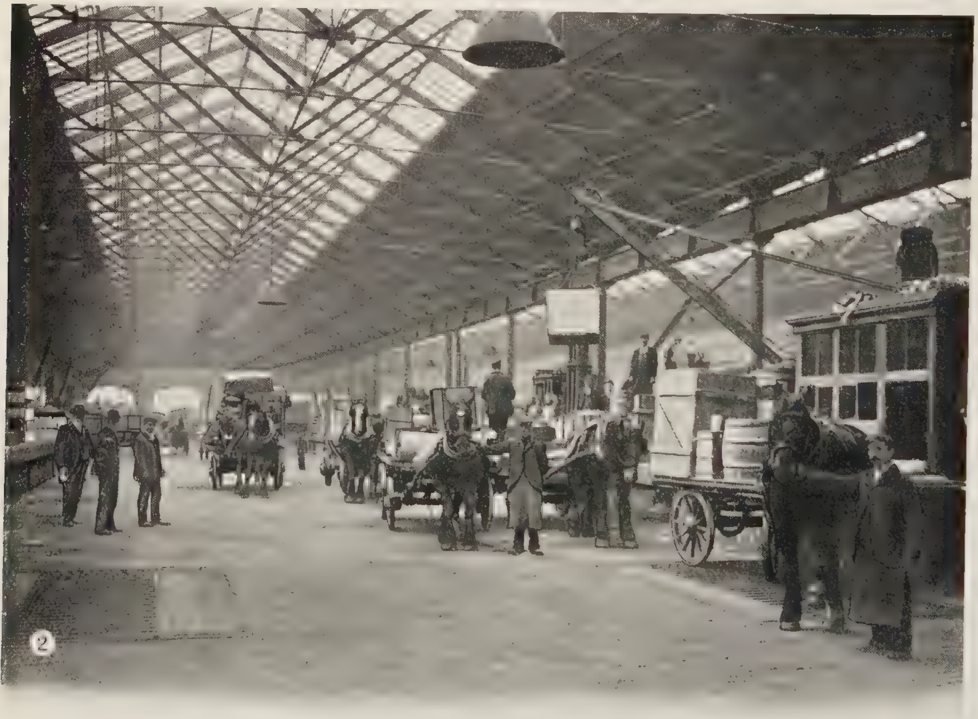
Hull

A Notable Humber Port

AT Hull, the rival Humber port to Grimsby and Immingham, the Great Central Railway Company is exceptionally well situated for dealing with all classes of traffic through the docks. The Company possesses two goods depôts, the Kingston Street Station and the Creek Station, both of which occupy sites in the very heart of the docks, and are the nearest to the markets and town. Facilities for the expeditious handling of traffic of every description and ample storage accommodation are provided.

Shipping traffic is collected from and delivered alongside vessels in all the docks, and the Company has direct access by rail to warehouses and vessels at the Albert, Sir William Wright, St. Andrew's, Prince's, Railway, Queen's and Victoria Docks. With respect to the Alexandra Dock, specially heavy articles and mineral traffic for shipment by vessels in that dock should be consigned direct to Alexandra Dock Station by Great Central route, but in the case of mineral traffic passing in consignments of 25 ton lots and upwards, communication should be made





HULL.

1.—The Creek.   2.—Interior of Kingston Street Warehouse.

beforehand with the Great Central Agent, at Kingston Street Station, Hull, in order that the traffic may be forwarded *via* New Holland for delivery alongside ship by lighter.

The Company possesses a large flotilla of lighters at Hull, and by means of these collection and delivery can be made from and to all of the docks. Special facilities are provided for collecting in this way direct from ship large consignments of grain, iron and other traffic.

In the case of timber and other traffic requiring to be dealt with at the Stations of Drypool, Wilmington, and Sculcoates, on the Victoria Branch, all consignments sent by the Great Central route are conveyed by the Company's own trains.

Bills of Lading entrusted to the Company are carefully and expeditiously dealt with. The Company clears imported grain through the Custom House, and also the following articles, viz., iron, spelter, zinc, pig iron and copper. For these the Company provides special accommodation, with facilities for weighing and storing under warrant.

The Hull "Per Rail" Supplement, containing a list of Offices in Hull at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Hull, can be obtained free on application to the Goods Agent, Kingston Street Station, Hull, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

DONCASTER.

DONCASTER is the market town for a large and important Agricultural District and has a population of 30,000. The opening up of new collieries in the district is a valuable commercial asset to the town and will undoubtedly materially increase Doncaster's prosperity. Traffic for the Continent will naturally be sent through the ports of Grimsby and Immingham, and as Doncaster is an important railway junction it is easily linked up with all the commercial centres at home.

Amongst the principal industries may be mentioned flour mills, brass and iron foundries, wire works, tanneries, agricultural implement works, breweries, railway wagon works, etc.

The Great Central Goods and Mineral Depôt is at Marshgate and Cherry Tree, where siding accommodation is provided, together with a 5-ton crane, and ample facilities are afforded for the collection and delivery of goods. Marshgate is the nearest depôt to Bentley, where building operations are active, consequent upon the newly-developed collieries. At Balby the Company has siding accommodation for mineral and other traffic not requiring protection, and can suitably deal with traffic for the Hexthorpe and Balby suburbs of Doncaster.

The Doncaster "Per Rail" Supplement, containing a list of Offices in Doncaster at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Doncaster, can be obtained free on application to the Goods Agent, Great Central Railway, Doncaster, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

BARNSLEY.

THERE was a community at Barnsley, which at that time was included in Pontefract, when the Doomsday Book was written, and the name is inscribed in the history of England. The town, which now has a population of 50,000, has a long commercial history.

In modern days one of the earliest industries was that of wire drawing, but to-day Barnsley is best known for its Silkstone and Parkgate coals, a large tonnage of which is sent to the South of England or is exported through the East Coast ports. Obviously, Immingham will now be the dock to which coal from Barnsley will be consigned for shipment. Another established industry here is the glass bottle trade, and, like many other Yorkshire towns, Barnsley has a share in the textile industry, the particular branch followed being that of linen weaving. Iron and steel manufacture, paper manufacture, bobbin making (the largest bobbin factory in England is situated here), printing, bleachworks, saw mills, brewing and dye-works make up the sum of trading activities. The accommodation—including cranes of various lifting capacities, and a large warehouse with up-to-date equipment—provided by the Great Central Company is well designed to meet the needs of the different groups of traders.

The Barnsley "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Barnsley, can be obtained free on application to the Goods Agent, Great Central Railway, Barnsley Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

WAKEFIELD.

THIS City, situated on the banks of the Calder, stands like a sentinel outpost on the fringe of the great group of industrial towns which have made the name of the West Riding famous. Wakefield enjoys the dignity of furnishing the title to a bishopric, and every schoolboy has learnt something of the Battle of Wakefield, where fell Richard, Duke of York. The modern town has many features, not the least notable of which is the fine Chantry built upon the bridge which spans the River Calder. Its industrial importance in the textile trades belongs rather to the past, the modern trade having largely gone into other channels. Many of the foreign weavers, who first taught the Yorkshiremen the secrets of the cloth trade, settled in Wakefield and it became a great centre of the industry. Wakefield traders, while retaining some share of the cloth trade, have turned their attention to the national industry of Agriculture as offering an even wider scope. Of late years, therefore, Wakefield has made a name in the grain and flour trade, and has also gone ahead in the manufacture of machinery. The City has the advantage of good railway facilities and its traders are well catered for by the Great Central Railway.

A large Cattle Market is held each Wednesday. Spacious warehouses equipped with cranes are provided for the loading, unloading, and storage of general merchandise.

The Wakefield "Per Rail" Supplement, containing a list of Offices in Wakefield at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Wakefield, can be obtained free on application to the Goods Agent, Great Central Railway, Wakefield (Westgate), or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

Leeds

The Centre of many Important Industries

THIS famous Yorkshire City has many titles to distinction. Its history goes back to a remote period, and for at least a century Leeds has ranked as a leading and enterprising industrial centre.

It is clear, however, that the eminence won by its traders is largely to be attributed to the excellent transport facilities which the City has always enjoyed, In the pre-railway era it was well served by its waterways, and the excellence of its modern railway system is fully realized by the shrewd business community which enjoys its advantages. The accommodation which the Great Central Company offers to its traders is the subject of some detailed information which follows.

The location of the City gives it an interest not only in the specialised industries with which the name of Leeds is so closely associated, but also in Agriculture, which flourishes almost at its very doors. At a comparatively early period the woollen trades were founded here, but although there were fulling mills and dye vats in Leeds before the Flemings, the rise of the clothing trade of the West Riding to a position of importance may be safely attributed to the settlement in the district of the Flemish weavers. Prior to the advent of these workers, much of the wool grown on the Yorkshire Moors was exported to the Continent and there woven into cloth, but the Flemish workmen taught the secret of the trade to the men of Leeds and thus laid the foundation of the Cloth Industry.

The establishment of the Engineering Trade in Leeds, which now comprises the production of all classes of machinery and machine tools, arose partly out of the demand for machinery from the textile trades, and partly from the presence in the district of the raw material of the iron trades.

Leeds men also played a pioneer part in the application of steam to locomotion, and it is generally acknowledged that a Leeds firm built the first commercially successful locomotive. These early locomotives were of the toothed wheel and cogged rack type, and the City has maintained a firm hold on locomotive building down to the present day.

Another old industry which still exists is that of glass bottle manufacture. More modern developments are concerned with the leather trades, and to the tanning industry which followed upon the sales of leather has now been added the manufacture of boots and shoes.

The City has also won no mean reputation for its pottery, and in recent years the trade has emerged from the purely artistic side into the commercial arena, there now being many factories with a large output of terra cotta and faience wares.

Although its population of half-a-million has been temporarily eclipsed by that of Sheffield, the commercial future of Leeds is assured by the broad basis upon which its industrial reputation has been founded.

Many advantages are gained by traders and manufacturers who consign their goods to and from Leeds by Great Central routes, the Company's direct services of express goods trains to and from Grimsby and Immingham being of especial importance in connection with the extensive traffics to and from the Continent which pass through the Humber Ports. Express Goods Services also operate between Leeds and London, Leicester, Nottingham, Sheffield, Manchester, Liverpool, and the South and West of England, and during the season of Forced Rhubarb, a commodity grown extensively in the district, special transits are arranged to South Wales in addition to the places already mentioned.

GREAT CENTRAL GOODS WAREHOUSE AND YARD, WELLINGTON BRIDGE, LEEDS.

It has been said of Leeds that no matter how great the depression with which different trades may be affected from time to time, general distress is practically never known in the City. This is due to the astonishing variety of Leeds industries, which embrace practically all forms of manufacturing and commercial activity. The City has, so to speak, numerous irons in the fire, and if trade is bad in one quarter, the comparative prosperity in another tends to hold the balance even, and prevent the universal distress which in gloomy times is sometimes the lot of a community depending wholly, or in great part, upon a single industry.

This catholicity of Leeds trade is well illustrated by the traffic consigned "per rail" to and from the City. It is almost as impossible to point to a preponderance of any one class of traffic as to give an enumeration of the whole: but perhaps the most extensive traffics are those from the staple trades of the City—engineering, woollen stuffs, boots and clothing.

Heavy the traffic certainly is, as might be expected from an industrial centre of such importance. At the Wellington Street and Wellington Bridge goods station, however, the Great Central Company's own staff have admirable facilities for meeting every demand, whether it takes the form of an 82-foot crane jib, that requires five wagons for transport, or the smallest of packages. The goods yard affords space more than ample for marshalling the numerous trains, while for mineral traffic a special yard is reserved.

The two large warehouses of the depôt at Wellington Street and Wellington Bridge offer storage space adequate for any needs, and being exceptionally well ventilated, supply excellent accommodation for grain and flour, as well as general merchandise.

The Leeds "Per Rail" Supplement, containing a list of Offices in Leeds at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Leeds, can be obtained free on application to the District Goods Manager, 54, Wellington Street, Leeds, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

Bradford

The Hub of the Woollen Industry

AT one period the Woollen Trade was spread over a far wider area than it is to-day, and, indeed, the East, South and West of England were in earlier days the chief centres of this industry. It was the recognition by the old Yorkshire manufacturer that machinery and power looms were destined to become powerful which served to focus the trade in the West Riding.

The real progress of Bradford in the commercial sense dates from the early years of the 19th Century. The old town, with its rookeries of narrow streets, was largely remodelled, and again within the past fifty years Bradford, which has made an enormous extension of its boundaries, has been practically rebuilt. Its population has now increased to 300,000, while within a radius of twelve miles there is a population of three quarters of a million, dependent upon the wool industry.

Four-fifths of the woollen manufactures of the United Kingdom are now centred in the West Riding. The Bradford district produces, blankets, carpets, rugs, tapestries, plushes, velvets, and woollen, worsted and silk fabrics of all kinds. Every wool growing district of the world has an important customer in Bradford, and its products are bought for wear in all lands and in every climate. The Bradford Exchange is the rendezvous for woollen manufacturers from the Continent and the Antipodes, as well as from all parts of Great Britain.

Bradford, regarded in the restricted sense, and not as the centre of the wool district, is engaged in the combing and spinning of wool and the weaving, dyeing and finishing of all varieties of fabrics, a recent innovation being the production of high-class cloth for men's wear. It will give an indication of the vast volume of trade transacted in the town, when it is pointed out that in spite of a high tariff wall Bradford exports over £3,000,000 worth of goods per annum to the United States alone. This figure furnishes an index to the character of the transport arrangements required, and, as may be expected, the Great Central Railway Company has given special attention to the needs of this great business community.

The Irish trade is considerable, Dublin and Belfast both being good customers; while the Continental traffic, mostly through Grimsby and Immingham, is very heavy. Woollen and worsted yarns, wool tops, and noils are exported in large quantities to the Continent, and the direct route which the Great Central Railway affords via the Ports of Grimsby and Immingham is of the utmost value to the Bradford traders.

The significance of Grimsby and Immingham to Bradford, and the vital importance of direct and easy access to those ports by rail, is the greater by reason of the convenient and speedy route which they offer to and from Antwerp, Rotterdam, Hamburg, etc.

Much wool comes to Bradford from Antwerp, where wool sales are held about six times a year. The Great Central Railway Company's own fleet of steamers plying regularly between Grimsby and Antwerp afford not only the most convenient means of transport, but also the quickest.

The Company has a fine service of Express Goods Trains between Bradford and Manchester, Liverpool, Birkenhead, Sheffield, Immingham, Grimsby, Hull, Nottingham, Leicester, London and Southampton, etc. For the carriage of goods to the South West and West of England the Great Central Railway offers an exceptionally good route via Banbury, where a junction is effected with the Great Western Railway.

The equipment of the railway's depôt at Bradford is equal to all demands. Weighing machines are dotted along the platform, and electric and hydraulic cranes thrust out their arms at frequent intervals, some picking up heavy goods, maybe, from the vehicles which have brought them in, and swinging them on to the trucks and into the very arms of the loading gang. Hoists of varying capacities are raising or lowering other goods to and from the floors of the spacious warehouse above.

No whit less interesting is the spectacle which the depôt presents in the early morning. Then it is that the "inward" goods traffic arrives, express trains bringing by direct and convenient routes general merchandise from various towns, wool from London sales and the country, and during the "import" season heavy consignments from the Ports of Liverpool, London, Southampton and Manchester, as well as the four Humber Ports of Immingham, Grimsby, Hull and Goole. Instead of the busy loading scene, now is witnessed the expeditious skill with which the trains are unloaded, and the goods sorted and spirited away by vans, drays and lorries.

In the goods warehouses at Bradford are stored immense quantities of all kinds of merchandise, lying there in safety until orders are received from the owners for transport elsewhere. Two large specially constructed warehouses are set apart exclusively for the storage of wool.

From the warehouse one steps into the surrounding goods yard; and here it should be mentioned that adjoining the Adolphus Street depôt, and having direct connection with it, are the Hammerton Street Sidings, to which timber, iron, and similar traffic for Bradford is not infrequently consigned, the Great Central Company being thus peculiarly well situated for dealing promptly with the latter.

The City offices of the Company are at 17, Bridge Street. The chief Goods offices are at 62, Wakefield Road, there being local Goods offices at the station. The Company also deal with wool and general traffic at City Road Station.

It should be stated for the information of Bradford wool merchants that representatives of the Great Central Railway Company from Bradford attend the London wool sales, and also accompany buyers to country wool sales and to the Antwerp sales, and are ready at all times to answer enquiries, attend to shipments, and perform the like services for the convenience of their numerous clients.

The Bradford "Per Rail" Supplement, containing a list of Offices in Bradford at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Bradford, can be obtained free on application to the District Goods Agent, 17, Bridge Street, Bradford, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

(NOTTINGHAM)

DEWSBURY.

THIS is yet another of the towns in the West Riding which has the basis of its prosperity rooted in the Wool Trade, and with Batley forms an important part of the Heavy Woollen District. Worsted yarn, blankets, carpets and druggets are the principal branches of trade followed here. As is the case with other towns in this area the iron industry is also represented, as well as machinery manufacture; indeed the West Riding has achieved a great reputation for its machine tools.

The Great Central Railway has ample accommodation for the storage of all kinds of merchandise, and provides every facility for the prompt dispatch and delivery of all goods, whether for shipment or inland delivery.

The Dewsbury "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Dewsbury, can be obtained free on application to the Great Central Goods Agent, G.N.R. Goods Station, Dewsbury, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

Huddersfield

HUDDERSFIELD, with a population of 108,000, is world-famed for its fine Worsted Cloths, in addition to an endless variety of fancy goods consisting of worsted, silk and cotton, many being of delicate texture and elegant design. In the coal mining district, with its 70,000 inhabitants, an important trade is done in the cheaper kinds of cloth and all descriptions of tweeds. Yarn spinning is a large industry, and the local iron foundries are responsible for steam engines, boilers, cranes, and machines used in the different branches of the textile trade. The Great Central Railway Company's system is connected with Huddersfield by a branch line from Penistone, which forms the direct route to the Midlands, Eastern Counties and London, also to the South and West of England *via* Banbury. Traffic to and from the Continent passes through the Humber ports of Grimsby and Immingham. The Great Central Railway Company possesses every facility for dealing with all kinds of traffic passing in and out of Huddersfield.

HALIFAX.

HALIFAX is a large market town with a population of 101,000 and ranks next to Leeds, Bradford and Huddersfield as a manufacturing centre. Its inhabitants are interested in worsted spinning and weaving, wire manufacturing, cotton and woollen card making, the production of damasks and table cloths, engineering tools, machine making, brewing, and brick and pipe making, gas engineering, wool stapling and wool extracting. There are also extensive carpet and rug factories.

The connection of Halifax with the Great Central Railway Company's system enables traffic for the Midlands, Eastern Counties, London and South and West of England to be expeditiously conveyed, and traffic from and to the Continent passes through the natural ports of Grimsby and Immingham.

There are four stations in Halifax to cope with the trade of the town and district, and each is equipped with all the necessary appliances for the prompt handling and dispatching of the various articles of commerce marked "Per Rail," and consigned by the Great Central route. All enquiries addressed to the Company's Goods Agent, 24, Southgate, will receive prompt attention.

The Huddersfield and Halifax "Per Rail" Supplement, containing a list of Offices in Huddersfield and Halifax at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Huddersfield and Halifax, can be obtained free on application to the Great Central Goods Agent, care of Thompson, McKay & Co. Ltd., 49, New Street, Huddersfield, to the Great Central Goods Agent, care of Thompson, McKay & Co. Ltd., 24, Southgate, Halifax, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

KEIGHLEY.

1.—Goods Warehouse, Offices and Yard. 2.—Loads of Wringing Machines.

KEIGHLEY.

THE West Riding town of Keighley, formerly spelt Keigheley, and locally pronounced Keithley, has grown of late years at a pace little short of amazing, and to-day occupies a position of the highest industrial importance. Though not beautiful in itself (a distinction to which few manufacturing towns, in the nature of things, aspire), it has a charming situation in a deep valley near the junction of the Worth with the Aire, and is conveniently placed for an industrial centre. The latter fact, indeed, is well illustrated by the thriving trade of the town, and its rapidly increasing importance.

The manufactures of Keighley are of various sorts. Worsted and woollen goods form a fair proportion of the trade, but the bulk of the town's output takes the form of machinery and machine tools. A speciality is the extensive manufacture of Wringing Machines, of which useful household article no fewer than from three to four thousand are sent out weekly from Keighley to all parts of the World.

The trade in Machine Tools is scarcely less extensive, the various firms engaged in this business having some of the biggest customers possible on their books. Nearly all the trunk railways are furnished with machine tools from Keighley, and the Admiralty Dockyards likewise create a continuous demand. Frequently the Great Central Railway Company are called upon to transport such heavy machine tools, of the boring and lathe class, which vary in weight up to eighty tons. Textile machinery, again, is manufactured in great quantities, one Keighley firm employing a constant average of 2,000 hands in the turning out of spinning and combing machinery, etc.

The woollen and worsted trade has already been mentioned. Though not the staple industry of Keighley, it attains large dimensions, and the railway warehouse is always full of heavy consignments of wool. The yarn traffic also is considerable, much foreign yarn being imported into the town.

An interesting feature of the inward traffic is the large consignments of "American rollers." These are the short lengths of maple logs imported for the purpose of being made into the rollers of wringing machines. Daily in the Railway Goods Depôt numerous truck loads of this hard wood may be seen in the process of unloading, the "selector" of this or that firm supervising the business, and inspecting with discerning eye and critical hammer-tap each separate log. A most important person is the "selector," according to whose rapid and expert judgment each great consignment is split up, and the rollers composing it classified into different grades of quality.

To meet the special requirements of Keighley manufacturers and traders, the railway company has made every needful arrangement. The Warehouse is a large and commodious building of two floors, admirably adapted for the storage of wool, yarn and general goods. Its construction is fireproof, and adequate crane power is provided for the prompt and convenient handling of all kinds of traffic.

A special fruit shed is reserved for the accommodation of all goods requiring cool storage, while for the heavy traffic in "mangle rollers," as described above, there is a separate roller shed, provided with cranes of lifting power up to thirty hundredweight, in which this peculiar class of goods is most expeditiously dealt with. The Goods Yard is of great extent, conveniently arranged, and provided with two ten-ton cranes, as well as numerous others for the lifting of lesser weights.

Goods consigned "per rail" over the Great Central system have the advantage of travelling, in many cases, by direct routes, which ensures delivery with the utmost expedition. Through the Humber Ports of Grimsby and Immingham, for instance, Keighley exchanges a vast amount of traffic for the Continent, and by the Great Central Railway direct route through trucks are despatched to the East Coast Ports every day, ensuring the delivery of goods next morning for shipment. There is likewise very heavy shipping traffic between Keighley and the ports of Liverpool, Manchester and London. In all these cases the Great Central Railway provides convenient routes for rapid transit and prompt delivery.

To Sheffield, Nottingham, Leicester, the Midlands and London, the Great Central main line offers a direct route. For Traffic for the South and South-west of England, and South Wales, the Great Central Company has special facilities for forwarding by means of its connection with the Great Western Railway at Banbury, this route favouring expeditious transport. To the North Wales district the Great Central route is *via* Wrexham, while for traffic for the London & South Western *via* Neasden, and South Eastern & Chatham Railway *via* Banbury, convenient routes are afforded.

The Keighley "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Keighley, can be obtained free on application to the Great Central Goods Agent, Keighley Goods Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

NORTH-EASTERN DISTRICT.

THE ancient City of York, upon which the Great Central Railway system converges from several directions, is the gateway to one of the great industrial districts of commercial England. Into the heart of this rich traffic territory the Great Central Company runs its own trains, a direct through service linking up the ports of the Bristol Channel with those of the North-East Coast. Coal, iron, shipbuilding—these form the trinity upon which the commercial supremacy of Great Britain depends. It is in these industries that North-Eastern England has achieved industrial eminence. At Newcastle, Sunderland, Middlesboro', Darlington, and the Hartlepools, shipbuilding and engineering have attained a high level of development. On the building slips of Tyneyards have been laid down not only the great fighting units of the British and Foreign Navies but also the most notable additions to the mercantile marine, of which the "Mauretania" may be cited as a conspicuous example. Side by side with the shipbuilding industry have grown up the iron and steel and the marine engineering trades. An important local industry is that of railway locomotive construction. Here, too, are located works engaged in the lead, copper and chemical manufacture, and Newcastle is also the focus of the most important system in Great Britain for the supply of electrical energy. The industries of the Wear run largely parallel with those of the Tyne. Both districts have at their back that which, after all, is mainly responsible for their commercial development—the great natural resources of the Northumberland and Durham Coal Fields. In the Middlesboro' district immense deposits of iron ore have been wedded to the coal, and the works which line the shores of the Tees pour their pig-iron into all markets of the World, the average shipment being 5,000 tons per working day. At Darlington structural engineering is the staple industry and her bridge builders have carried the fame of the British engineer into the far corners of the World. The needs of the North-Eastern district in regard to transport have called for special railway facilities and the Great Central Railway has provided these without stint. Special care is given also to the rapid despatch and carriage of the fish traffic from the East Coast ports between Shields and Hull.

GOODS ARE CAREFULLY PACKED IN COVERED VANS.

The North Eastern District "Per Rail" Supplement, containing a list of Stations in the North Eastern District from and to which the Great Central Railway Company can carry merchandise, can be obtained free on application to the District Goods Manager, 54, Wellington Street, Leeds, the local District Agents, 89, Grey Street, Newcastle-on-Tyne, and 9, Victoria Terrace, West Hartlepool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

Scotland

TO the student of Commercial History the romantic story of Scottish Trade makes a special appeal; courage, enterprise, persistence, capital, all these have had their part in building the industrial edifice. Where now runs the deep water channel of the Clyde which gives the largest ocean steamships access to the Port of Glasgow it was possible within living memory to wade across what was then an insignificant stream. Some of the World's greatest works are to be found on the banks of the river, and from the Clyde shipyards have been launched a huge tonnage of warships, liners, dredgers, and other craft. To the Clyde marine engineer belongs the credit of having been the first to practically apply the turbine to steamship propulsion. Allied to the shipbuilding and engineering trade are the important iron and steel branches, including the machine tool trade and the famous locomotive works which flourish in the West of Scotland. The importance of the textile industry, in which Scottish manufacturers have long played an honourable part, is exampled in the great works at Paisley and the jute trade at Dundee.

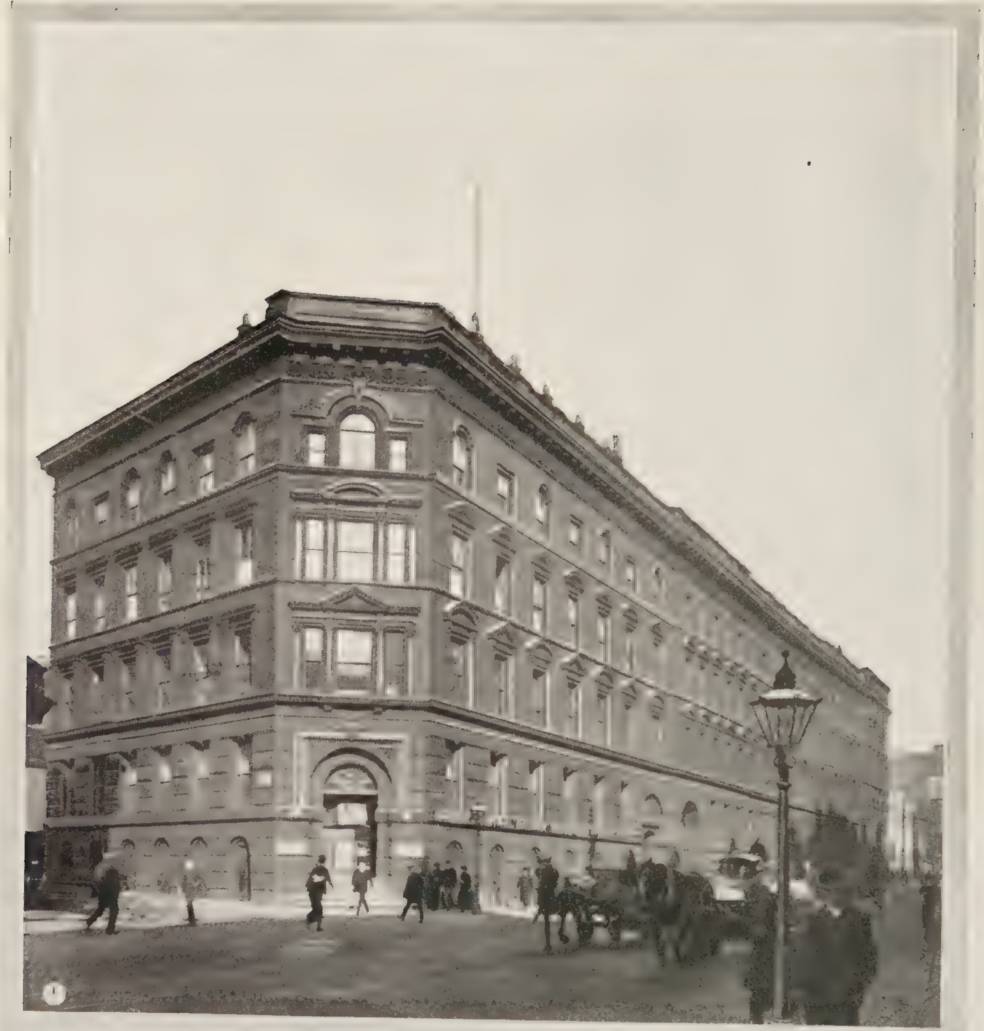
Mining has long been a staple industry. Coal and ironstone are largely worked, and the large production of oil shale is of national interest in view of the growing employment of oil fuel. Another specialised Scottish industry is revealed in the quarrying of Aberdeen granite, largely used all over the United Kingdom for building and other requirements. A more modern development is the establishment of large works on the west coast for the manufacture of aluminium, where water power is utilised for the production of electric energy on a scale which is perhaps unrivalled in Great Britain. These varied industries contribute a large traffic tonnage to the network of important towns served by the Great Central Railway, and the needs of traders have received the fullest consideration.

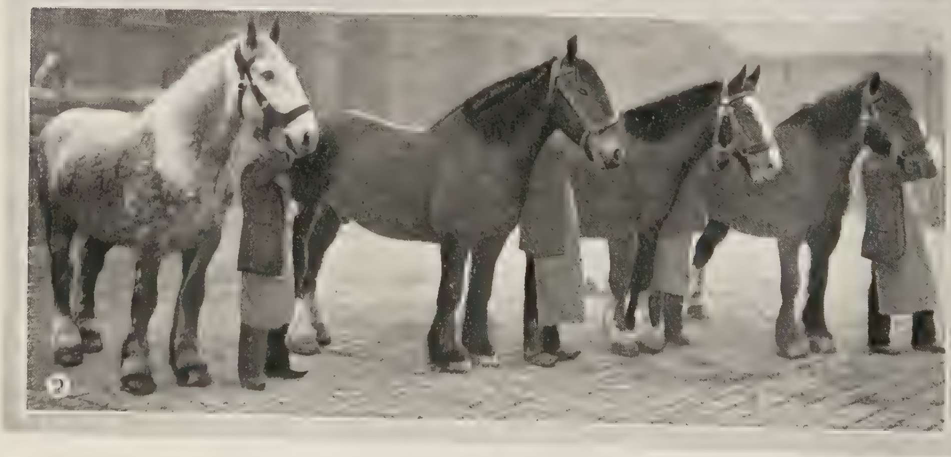
The Great Central Railway carries in conjunction with the various Scotch Companies, and is exceptionally well situated for dealing with traffic of all kinds to and from Scotland; goods of every description are collected and despatched with the utmost expedition.

It is necessary and important that all traffic intended for conveyance by the Company should be consigned per "Great Central Route."

The Company's representatives in Glasgow and Edinburgh will be pleased to furnish traders with particulars as to Rates, Routes, and any other information required.

The Scotch "Per Rail" Supplement, containing a list of Stations in Scotland from and to which the Great Central Railway can carry merchandise, can be obtained free on application at the Great Central Company's Offices at 162, Buchanan Street, Glasgow, or 75, Princes Street, Edinburgh, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.





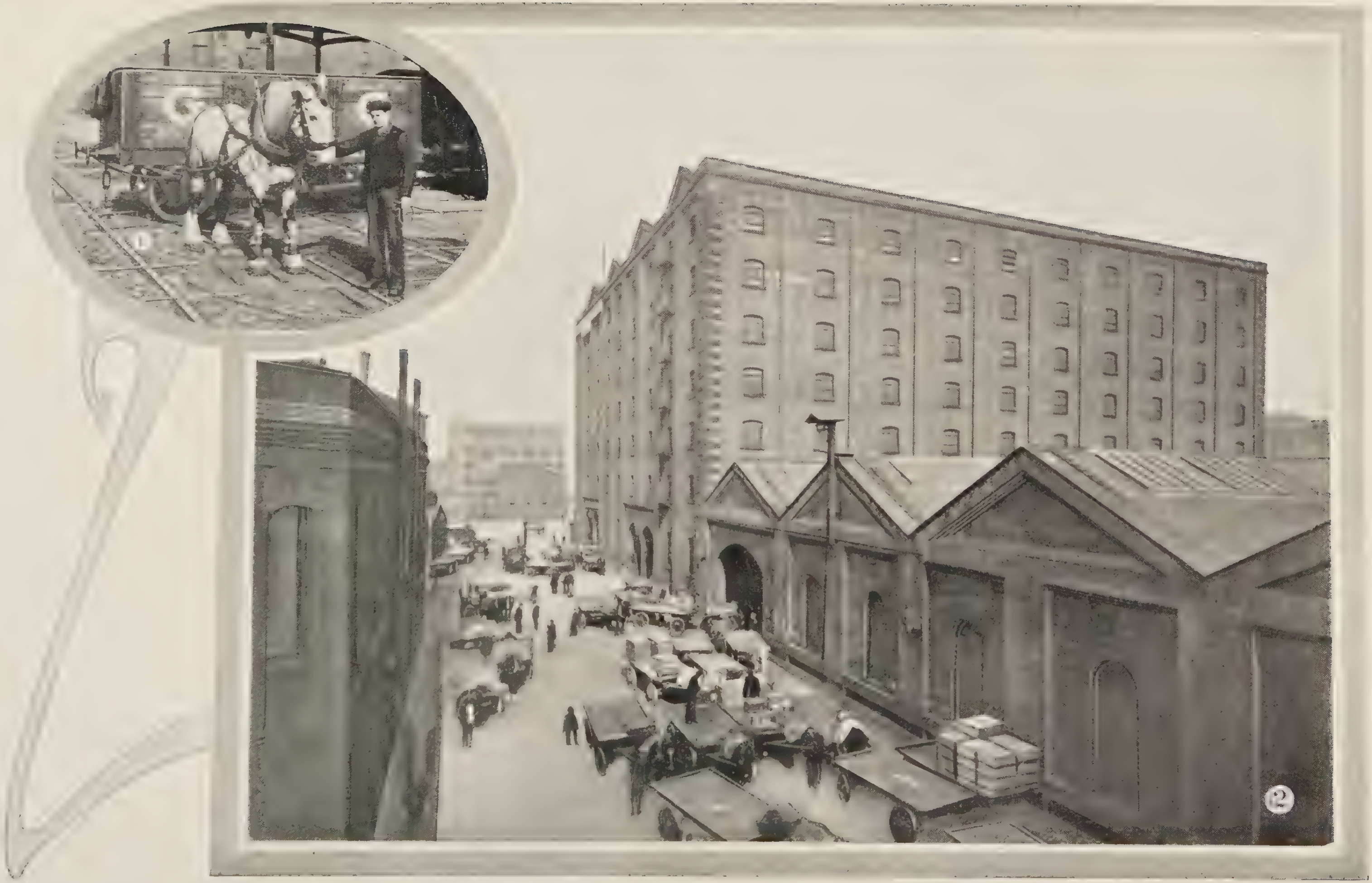
1.—THOMPSON, McKAY & CO.'S HEAD OFFICES—PORTLAND STREET, MANCHESTER.
2.—TYPES OF GOODS DRAY HORSES.

Manchester

The Cottonopolis of the World

LIKE other cities on the Great Central system, Manchester is intimately associated with one great staple industry; unlike other manufacturing centres, there is existent side by side with the main industry so great a variety of other trades that the commercial activities of Manchester may be justly regarded as an index to British trade as a whole. The establishment of the textile trades in the district dates back to the time of the introduction of the woollen industries into England by King Edward III. The Cotton Industry had its origin in the closing years of the 15th century, cotton being imported from Smyrna, and at a very early date after the foundation of the industry it became necessary to regulate it by special legislation. To-day Manchester occupies, of course, the supreme position in the Cotton Industry.

As indicated above, there has sprung up side by side with the Cotton Trade other important industries. The district is famous for its Engineering Trades, Locomotive Building, Ordnance Manufacture, Textile Machinery, the Structural Steel Branch, Boiler Making, Gas Engine



MANCHESTER.

1.—Horsed Wagon on Turntable.

2.—Great Central Goods Warehouses, Ducie Street.

Construction, Motor Car Building, Electrical Engineering—all these are represented in modern commercial Manchester.

The Manchester district is the most densely populated commercial area in Great Britain. Including the adjoining Borough of Salford, the population of Manchester at the Census taken in 1911 nearly reached the round million, and including the area within a few miles radius of the city there exists a population of three or four times this figure.

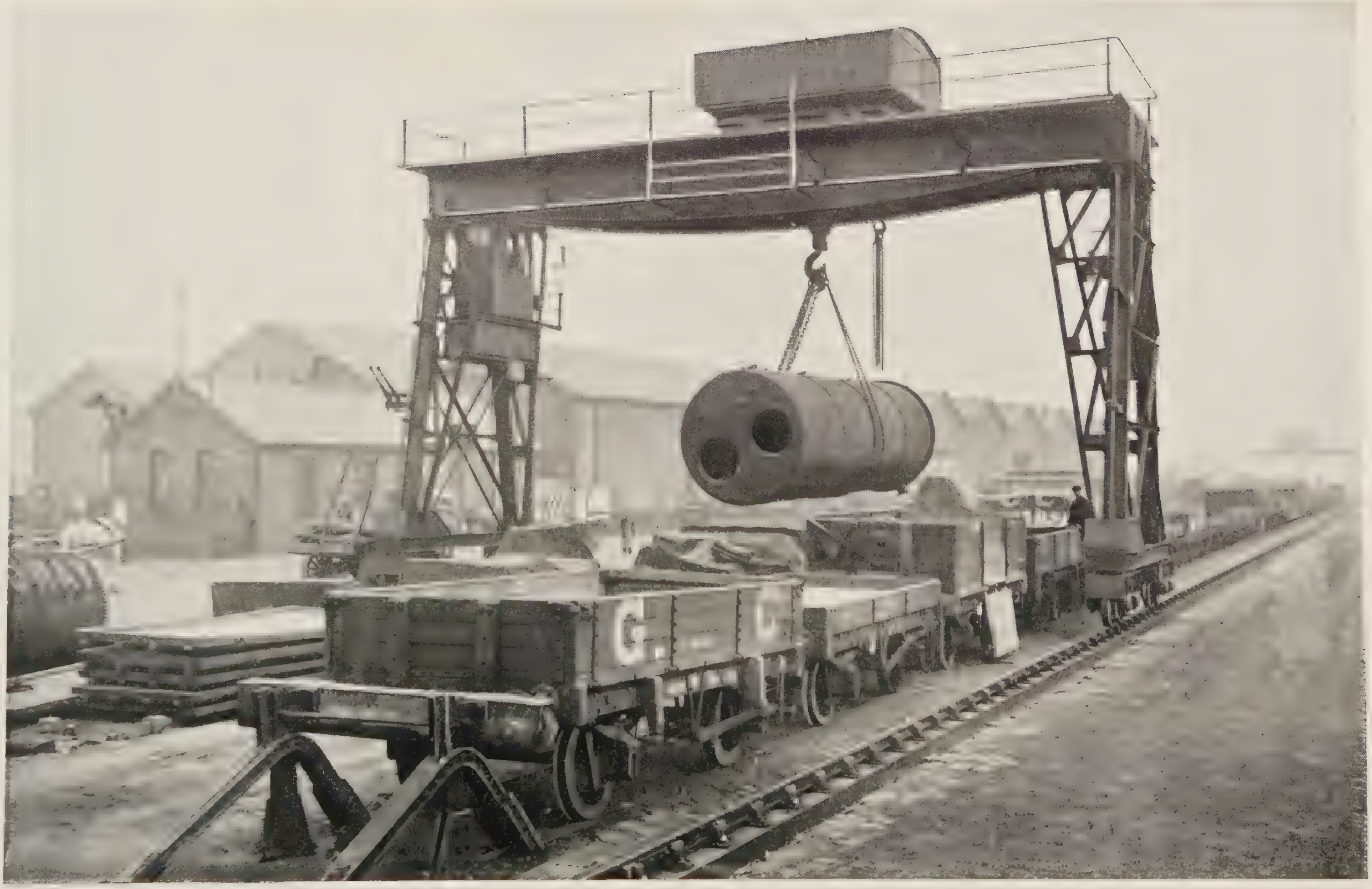
The Great Central Company has been fully mindful of its obligations to this great city.

In the vast warehouses of Ducie Street, which tower seven storeys high and wall in the Depot, are stored immense quantities of all kinds of merchandise, lying there in safety awaiting the owners' instruction.

There is also a lofty and spacious covered wharf, which is utilised for fruit and vegetable traffic, and where the fish, which daily arrives in special trains, is handled. Potatoes, carrots, cabbages, and cauliflowers are here by the truck load, with every kind of garden produce in infinite variety. There is also an immense traffic in bacon and butter from Esbjerg and other Danish ports, and during the season fruit of all kinds in large quantities from Germany and other parts of the Continent arrives by the Company's boats to Grimsby, and across the country "per rail."

The Grain Warehouse is a tremendous building, occupying three sides of a square, and having six storeys above the huge area of ground floor. Ample accommodation is thus provided for the storage of the large quantities of grain, other cereals, and flour with which the Company is called upon to deal.

The London Warehouse (as it is commonly called) is a building of equal height to the last named. The ground



ARDWICK.

40-Ton Electric Travelling Crane lifting a 25-Ton Boiler.

area is provided with five stages, and here the bulk of the general goods to and from London, Southampton, and other ports is handled. The floors overhead contain wares of all kinds, and especially shipping traffic. The warehouse is fireproof, the ceiling of each storey being brick, and four floors are furnished with Automatic Fire Alarms communicating direct with the Fire Brigade Station.

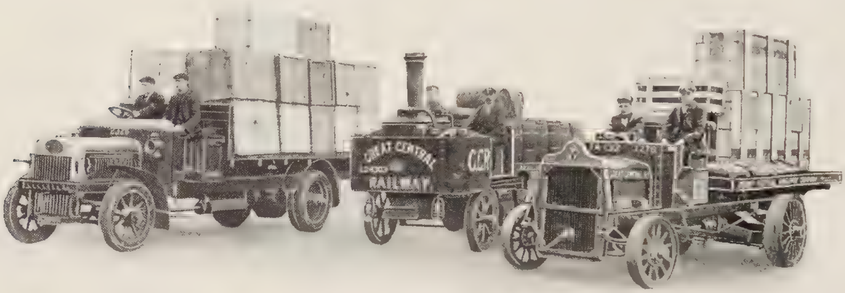
The Bonded Warehouse, dry and wet, upon the massive doors of which one sees two locks, one for the Excise Officers' key, and one for the Company's key, which prevent either authority from entering without the presence of the other, affords extensive accommodation for both dry goods, such as Tea and the like, and the various wines and spirits which are embraced in the term "wet goods."

MOTOR AND HORSE LORRIES IN MANCHESTER.

Then there is the Canal Warehouse, where the goods are received and despatched by water route along the Ashton, Peak Forest, and Macclesfield Canals, which are owned by the Great Central Railway. This building is most conveniently situated, close to Ducie Street, and goods received by rail from other parts can be forwarded by barge.

The Company owns both road motor lorries and innumerable horse-drawn vehicles for the collection and delivery of Goods in Manchester and district. In Manchester alone the Company has nearly 600 horses stabled.

It should also be mentioned that adequate facilities for the shipment of coal and coke are provided at the Manchester Docks as well as at Partington and Glazebrook.



TYPES OF MOTOR LORRIES.

ARDWICK.

At the Ardwick Goods Depôt general merchandise is dealt with, as at Ducie Street, with the addition of all heavy traffic and minerals. Hither are sent to be loaded such bulky consignments as machinery, mammoth boilers, metal castings, large quantities of cloth loaded on flats, and other wares. The Company has provided special facilities for dealing on the instant with traffic of the most ponderous and unwieldy kind, and the heaviest loads are whisked by powerful cranes off the drays and lorries, and deposited in the waiting wagons, with the most amazing ease and celerity.

Perhaps the most interesting feature of the depôt is the 40-ton electric Goliath travelling crane, which has the exceptional travelling range of over 50 wagons' lengths. This is supplemented by a second travelling crane, and other cranes varying in capacity from 5 to 10 tons, besides a host of smaller cranes, inside the warehouse and out, for handling the smaller articles of merchandise. The weighing machines are of corresponding capacity.

For general and outward traffic two warehouses are provided, and the accommodation permits of over 70 wagons being loaded within them simultaneously. The coal traffic is naturally heavy (Ardwick being the principal Great Central Coal Depôt for Manchester). The provision for this traffic is equally adequate, there being a special coal yard with the necessary drops. For Live Stock there is a Cattle Dock.

Much of the heavy traffic which passes through the Great Central Depôt at Ardwick comes from the neighbouring large works. The yard affords ample storage accommodation, and immense boilers or huge castings from the foundries close by may always be seen there awaiting orders.

Much of the rolling stock to be seen at the Ardwick Depôt is of peculiar interest, for there is always held in reserve a number of the special vehicles employed for the carriage of the heaviest kinds of traffic. Here may be noticed the long 40-ton Bogie Wagons, flat or cradle shaped, for carrying the great cylindrical boilers, as well as special Machine Trucks, "twin wagons," and other vehicles of unusual types.

OPENSHAW.

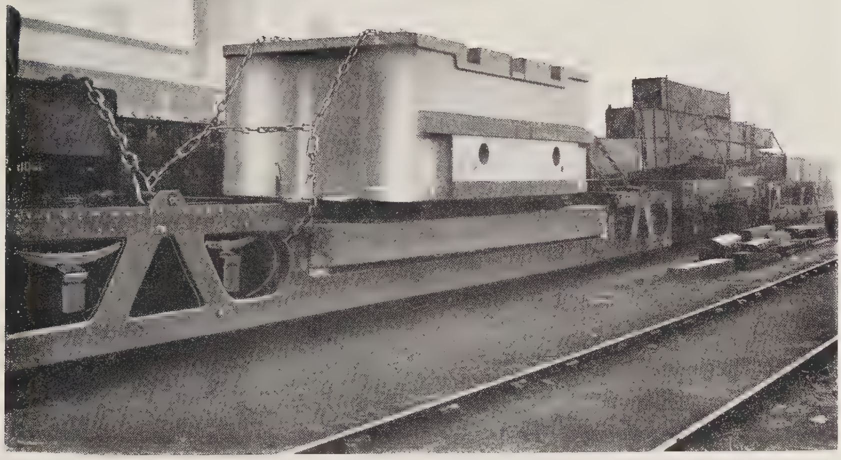
Although through Ardwick a great deal of heavy traffic passes, yet for the heaviest goods of all Openshaw is certainly the most important depôt in the Manchester district. Here the chief traffic consists of heavy Guns, Armour Plates, Turrets for Battleships, Hydraulic and other Machinery, Locomotive Engines, Motor Vehicles, Railway and Electric Carriages, and Railway Wagons—the Railway stock being sometimes conveyed on its own wheels, and sometimes in parts for shipment. All the large firms manufacturing these exceptionally heavy articles and appliances have direct siding connection between the Great Central Company's main line and their works, the traffic being loaded on their premises and generally conveyed by through trains to various parts of the country, a large proportion of the goods being for shipment.

Many of these gigantic consignments require the most skilful and ingenious loading, and the Great Central Company employs men of special experience whose duty it is to devise the best and safest means of conveying the awkward pieces which are almost daily handed to the Company. The tendency at the present time seems to be to increase the size, weight and strength of such mammoth articles as these, and the Company frequently finds it necessary, in order to ensure safe transit, to work the goods to their destination under special conditions.

The inward traffic consists chiefly of Coal, Iron, Steel, and Timber necessary for constructional purposes in the manufactures just referred to.

General goods are dealt with at Openshaw, in addition to the heavy traffic, and for these there is a well-appointed warehouse fitted with every modern appliance. There is also a dock for the loading of Motor Cars and similar vehicles.

In addition to the magnificent central depôts at Ducie Street, Ardwick and Openshaw, the Great Central Company possess other Goods and Coal Depôts in the environs of Manchester to meet the requirements of the traders and dwellers in the districts away from the centre of the city, special facilities having been provided both for Goods and Coal business at their Fallowfield, Levenshulme, and Hyde Road Stations.



80 TON CASTING LOADED ON CANTILEVER PRINCIPLE.

GUIDE BRIDGE.

Through this important junction on the outskirts of Manchester a very considerable traffic in General Goods passes. The Hat Traffic from Denton and surrounding districts is dealt with in large quantities, as well as Jam and other foodstuffs from Droylsden. There are also Linoleum Mills and Electrical Accumulator and Sewing Machine Works in close proximity to this Station. Cranes of large lifting capacity are provided, as well as the necessary accommodation and facility for handling all classes of goods. A large coal traffic is also dealt with at this station.

The Manchester "Per Rail" Supplement, containing a list of Offices in Manchester at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Manchester, can be obtained free on application to the District Traffic Manager, District Goods Agent, or the Company's Carting Agents, London Road Station, Manchester, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

ASHTON.

ASHTON owes its rise from a small and meagre town into a thriving and populous borough to the Cotton Industry. The town has other manufactures, of course, but cotton has always been and is likely to remain its staple trade. This fact is reflected in the interior of the Great Central Company's warehouse at Park Parade, where each of the four floors is piled high with bales of cotton. There are occasions when the warehouse contains as much as £100,000 worth of cotton, a figure more readily appreciated if it is stated that the building contains storage space for about 10,000 bales at one time.

In addition, a very considerable traffic in general goods is dealt with, and the coal traffic is also heavy.

ASHTON MOSS SIDINGS.

At Ashton Moss extensive sidings are provided for the purpose of exchanging Fish, Goods, Mineral, etc. Traffic passing to and from the Great Central and Lancashire and Yorkshire Systems. The sidings accommodate about 600 wagons.

The plan and construction of the sidings has been carried out on the most up-to-date system, the wagons being sorted and shunted for dispatch on the principle of gravitation to facilitate prompt transit.

The Ashton "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Ashton, can be obtained free on application to the Great Central Goods Agent, Ashton Park Parade Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

STALYBRIDGE GOODS WAREHOUSE.

STALYBRIDGE.

AT Stalybridge, as at Ashton, Cotton is the staple industry, and cotton forms the bulk of the goods stored in the Great Central Company's commodious warehouse. This latter is a large fireproof building with three floors above the ground area, packed tight at every season of the year with bales upon bales of American, Egyptian, East Indian, and Peruvian cotton. Several thousands of bales are usually in store at one time in this building, which has also a spacious cellar.

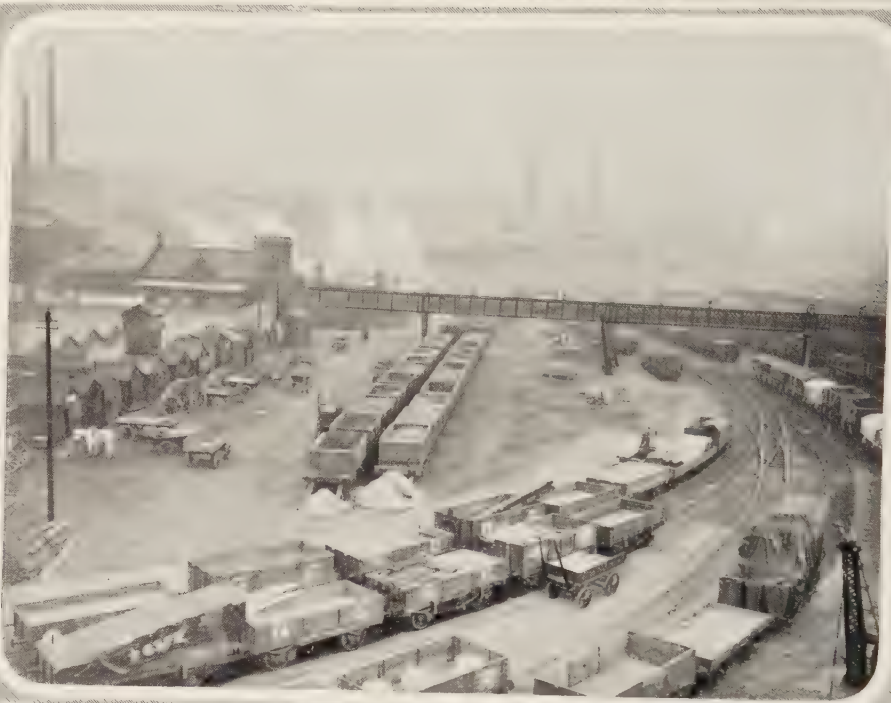
A second important industry at Stalybridge is the manufacture of textile machinery, nails and galvanised iron, etc., and to feed the works engaged in this production there is a constant and heavy inward traffic of girder ends, American billets, and iron in various other forms.

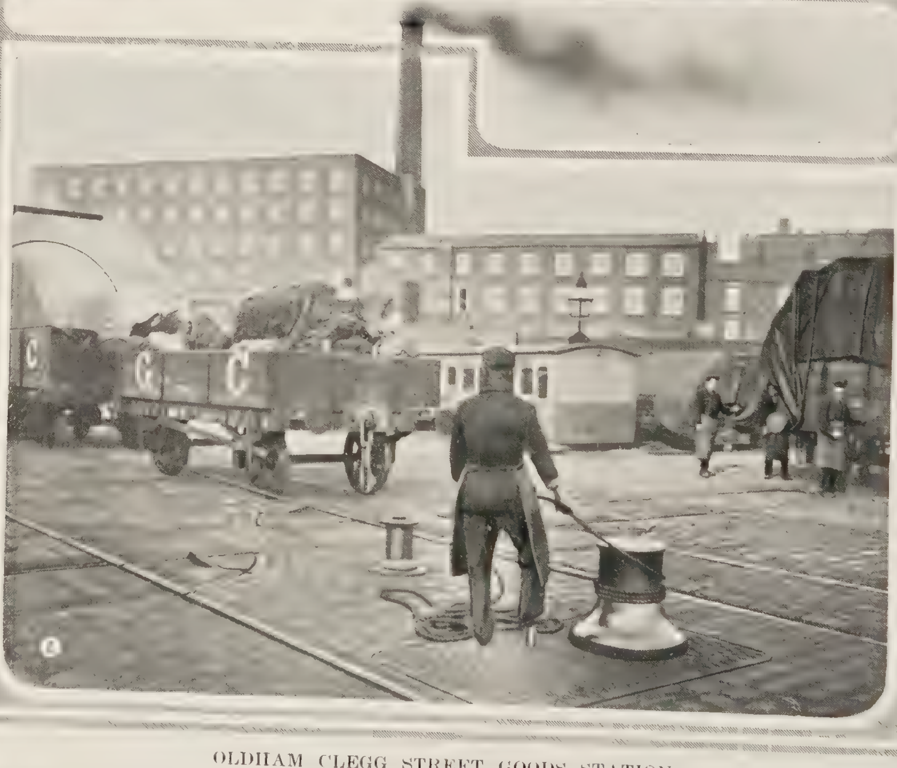
Power inside the warehouse is provided by a modern gas engine. The yard and warehouse are equipped with a travelling crane of 20 tons capacity and stationary cranes designed with the view to meet all requirements.

The coal traffic at Stalybridge is very heavy, and special accommodation has been provided to meet its increasing demands. There are 21 coal drops, which enable a very large number of carts to be loaded at one time. The weekly average of coal dealt with is very considerable, and space is provided on the special roads over which the coal traffic is worked for placing between 60 and 70 wagons in position for unloading into carts. The coal yard contains two weighing machines, and both stationary and movable weighing machines are included in the warehouse equipment.

A TYPICAL PAIR.

The Stalybridge "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Stalybridge, can be obtained free on application to the Great Central Goods Agent, Stalybridge Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.





OLDHAM CLEGG STREET GOODS STATION.

1.—General View of Coal Depôt and Station Yard. 2.—Shunter Working Hydraulic Capstan.

OLDHAM.

OLDHAM is a Municipal and County Borough, and stands on an eminence six miles north-east of Manchester. It is connected at Guide Bridge with the Great Central Company's main line from London to Manchester. The Municipal borough has a population of 150,000, and is one of the most prosperous towns in Lancashire. It is the centre of the Cotton Spinning Industry, and consumes one-fourth of the raw cotton imported into the United Kingdom. There are upwards of 200 modern Spinning Mills, with 14 millions of spindles preparing yarn for the loom to be woven into cloth, at home and abroad. There are also a large number of Weaving Factories, with 16,000 power looms manufacturing fustians, velveteens, sheeting, sateens and other varieties of cotton goods.

Other industries—both numerous and varied—are conducted on a large scale. There are extensive works—one employing over 10,000 hands—for the manufacture of textile and other machinery, and among other trades are electrical and mechanical engineering, flour milling, boiler making and the manufacture of gas meters. The continual hum of machinery in motion makes the town a veritable hive of industry.

The Great Central Company's Passenger and Goods Stations at Clegg Street are in the centre of the town, and are convenient and commodious to meet all requirements of passengers and traders.

The Goods station is adapted to deal with every description of merchandise. There is a dock for the loading and unloading of horses, cattle, carriages, motor cars, show vans and other vehicles on their own wheels. Cranes are provided in the goods yard to lift machines and other heavy articles up to 10 tons in weight, and there is also a large warehouse, specially constructed with hoisting apparatus to the upper floors, for the storage of cotton, grain and other goods.

The Company has a large number of horses and drays for the purpose of collecting and delivering, in all parts of the town, goods carried by the Railway.

A large coal and mineral traffic is dealt with at the station, and extensive sidings are provided for its accommodation.

With a view to meeting present and future requirements, the Great Central Company recently extended its accommodation at Oldham by the construction of a depôt at Scottfield for dealing with goods and coal traffic. The new depôt is approached from Ashton Road, the busy thoroughfare of a district which, in recent years, has rapidly developed, owing to the erection of Cotton Mills and other Works. The Scottfield Depôt is easy of access to the town. The Yard is commodious and is provided with electric light, and all the sidings are convenient for the quick handling of goods and coal traffic. This depôt has become an important and useful addition to the railway facilities of Oldham.

The Oldham "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Oldham, can be obtained free on application to the Great Central Goods Agent, Clegg Street Station, Oldham, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

NEWTON.

NEWTON is situate in the borough of Hyde, but has an independent station on the Great Central Main Line, where the greater portion of the goods traffic for the districts of Hyde, Newton, and Godley is dealt with.

In addition to the large stone warehouse in which cotton and other general goods are stored, there are two large warehouses for use of traffic intended for the local Margarine works.

The Goods yard on the South side of the line is equipped with a 25-ton overhead crane, and numerous other cranes of varying capacity; and in this yard there is accommodation for all clases of goods traffic and live stock, also a dock for loading and unloading furniture vans, etc. In addition a yard is provided on the North side of the Railway.

The forwarded traffic principally consists of margarine, cotton goods and yarns, machinery, boilers, and boiler composition used in connection with the fixing of same, whilst a good trade is done in both hard and soft felt hats, and paper, both coarse and finished.

The received traffic is chiefly composed of a heavy tonnage of raw cotton, boiler plates, and rough castings, also material for the manufacture of margarine, and box strawboards. The cartage arrangements and equipment are sufficient to cope with all possible requirements.

The Newton "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Newton, can be obtained free on application to the Great Central Goods Agent, Newton Station, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

GLOSSOP.

THE town of Glossop stands at the terminus of a short branch off the Main Line of the Great Central Railway near Hadfield.

Paper making, cotton manufacture, bleaching and dyeing, and the manufacture of paper making machinery, patent belt fasteners and twine, are the chief industries of this thriving town.

The Goods Traffic is dealt with at Glossop station, which is equipped for coping with traffic of every description, the warehouse and yard being installed with adequate crane power.

There is also accommodation for the warehousing of cotton, etc., in the large warehouse, and in respect of the goods which require delivery, the carting arrangements are such as to ensure prompt handling in this direction.

A large cattle dock enables the Railway Company to deal expeditiously with live stock of every description, in addition to a dock for loading and unloading horses and carriages.

The coal drops, to the number of thirteen, and coal sidings provide accommodation for the unloading of the very large tonnage annually forwarded to Glossop for the surrounding mills.

HADFIELD.

THIS is a small but prosperous town about two miles from Glossop, with a population of about 8,000 inhabitants, whose chief occupations are cotton manufacturing, bleaching and dyeing, there being large mills and factories in the vicinity.

At Hadfield Station there is every convenience for dealing with goods traffic of all descriptions.

There is ample siding accommodation, and a warehouse for goods which do not require delivery on arrival. There are cranes in the warehouse, and also in the goods yard for dealing with heavy articles.

A very considerable quantity of coal is dealt with at Hadfield, for which a yard equipped with twenty-one drops is specially reserved.

At Hadfield, also, the Great Central Company has an efficient cartage staff for the collection and delivery of goods.

HAYFIELD.

HAYFIELD is a small town at the terminus of the Great Central & Midland Joint Railway. The chief industries are paper making, calico printing, cotton spinning and stone quarrying. The inwards traffic chiefly consists of pulp, old ropes and bagging, and chemicals for the manufacture of paper and the printing and dyeing of cloth, also raw cotton for spinning. The outwards traffic consists of printed calico, paper, yarn and stone.

The station is equipped with a warehouse possessing adequate crane power, and there is a stationary crane in the yard of five tons lifting capacity. There is also siding accommodation for a large volume of coal and other traffic.

STOCKPORT.

STOCKPORT is a town of steadily increasing trade. Hats and cotton form the staple items in the goods traffic, although the general traffic is extensive. At Wellington Road Goods Station, the Great Central Railway Company is well situated for dealing with all traffic, and possesses every facility for the storage and expeditious handling of all kinds of goods.

The warehouse, a commodious fireproof building, affords ample accommodation on its three floors for general goods; while at Portwood, near by, the Company has two other excellent warehouses, which are used principally for the storage of cotton and grain which reaches the local mills and corn factors.

A large coal yard is provided at the Wellington Road Station, and another at Portwood, this latter being equipped with drops. Wellington Road has also a commodious cattle dock, which permits of live stock being conveniently and promptly handled. There is every facility for dealing with furniture vans, etc. The cartage organization is adequate to meet the requirements of the various traders; and in addition to the Great Central route linking up Stockport with the principal industrial centres at home, it has also the most direct and convenient connections with the Continent through the ports of Grimsby and Immingham.

The Stockport "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Stockport, can be obtained free on application to the Great Central Goods Agent, Wellington Road North, Stockport, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

WIGAN.

THE ancient town of Wigan is now the centre of an important industrial area, having to-day a population of about 90,000. Its fine parish church contains some interesting memorials to the departed great who at one time had their country seats near Wigan, and the titles of which have been preserved in the names of the collieries whose shafts now rise where once were those fair demesnes. Of the local historic residences Haigh Hall, the seat of the Earl of Crawford and Balcarres, with its famous library, still remains. All visitors are familiar with Wigan market.

Diverse trades are in evidence, but the industrial reputation of Wigan rests upon the work of the Coal Miner, the district being one of the chief centres of this typical Lancashire industry. Allegiance is also paid to Cotton, that other staple trade of the County Palatine. Several works are engaged in Railway Wagon Construction, a business which is of course intimately associated with the transport of coal, and an allied industry practised here is the production of oil and grease. Another branch of local enterprise is that of Iron and Brass Founding, while local shops make a large output of screws, nuts and bolts.

The main business of the town is, however, the mining of Coal, and in the Wigan pits the latest developments of the coal industry are admirably illustrated. It has needed the co-operation of the railways serving the town to put Wigan in its present position, and the Great Central Railway has not always received full credit for its share in this work.

The enquiring traveller approaches Wigan expecting to see coal, and he is not disappointed. As the train advances along the branch line to Wigan which diverges at

Glazebrook from the direct Manchester—Liverpool route, the flat surrounding plain assumes a characteristic aspect. Tall solitary chimneys, or smoke stacks, rear themselves up on either hand, scattered over the country-side without apparent order or method. Beside each lofty stack is clustered a group of buildings over which are seen the great twin wheels, intermittently revolving, which mark the mouth of a coal pit. One reflects that far down in the bowels of the earth men are probing with pick and shovel for the black and shiny treasure, and the laymen marvel at the skill with which the subterranean delvers tunnel and burrow their way through the plutonic depths without trespassing upon each other's domains.

At every station upon the line that penetrates this mining area, the Great Central Company has special facilities for the prompt handling of the heavy coal traffic. To most of the collieries the Company has direct access, and the treasure of the mine is transported straight from the pit mouth.

From West Leigh and Bedford, Bickershaw and Abram, Hindley and Platt Bridge, Golborne, Ashton-in-Makerfield, and Haydock, great quantities of coal are sent out.

At Wigan itself the coal traffic is subordinate to that of general goods. The town, as already mentioned, is one of importance as a Manufacturing Centre, cotton spinning and weaving forming part of its industries. The accommodation for storage is ample and good, and the warehouse is provided with crane power adequate to the convenient and expeditious handling of the goods, including considerable quantities of fruit and other market traffic, which pass through this station.

The General Warehouse for miscellaneous traffic is a commodious iron building with ample space for the storage of goods of all kinds, and every facility for their prompt despatch. The cranes within the warehouse all have a lifting capacity of 30cwt., while the extensive yard is furnished with a powerful crane which will raise goods of weight up to 10 tons.

A large amount of goods traffic passes between Liverpool and Wigan, including considerable consignments of flour, while on Tuesdays and Thursdays great quantities of Birkenhead meat are dealt with.

Of the coal traffic in connection with the line, mention has already been made. At Hindley, where the yarn traffic is of quite special importance, warehouse accommodation is provided, together with crane power up to 10 tons.

At West Leigh there is considerable traffic in connection with the great brewery at Leigh, also a large agricultural machinery traffic.

From Lowton St. Mary's the town of Leigh may be easily reached by tram-car, which runs directly in connection with that station. Leigh is a rising town in the West Lancashire District.

The cotton industry is an important feature of the town's trade, several large new mills having been recently erected.

The Wigan and District "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Wigan and District, can be obtained free on application to the Goods Agents at the several Stations, the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

ST. HELENS.

COAL mining was the promised industry in this neighbourhood. Rich seams were located at a comparatively early period and coal was mined at a date which the local historian has fixed with certainty as the year 1623. The town has also long since been a seat of the glass trade: a factory having been erected at Ravenhead, in the township of Sutton, at the close of the eighteenth century. A large number of workmen were employed here, including some skilled French artisans to whose craftsmanship the success of these early works was largely due. A factor, which was of prime importance to St. Helens in the beginning of her commercial history, was the supply of cheap fuel from the local coal mines. This, in addition to assisting the development of the glass trade, led to the establishment of copper and chemical works. These early trading characters have been maintained down to the present day—St. Helens being one of the chief seats of the glass industry and the chemical trades. The population is about 94,000.

In addition to ordinary arrangements for dealing with general goods traffic, the Great Central Company has special facilities for the carting and handling of traffic of an exceptional nature, such as large cases of glass, iron castings, etc.

Ample warehouse accommodation is provided, and cranes installed have a lifting capacity up to 10 tons

The St. Helens and district "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to St. Helens and District, can be obtained free on application to the Goods Agents at the several Stations, the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

WARRINGTON.

WARRINGTON is a town as remarkable for its modern industrial associations as for its former historical interest. Its commercial importance is due in no small degree to its natural position, for, situated on rising ground, on the right bend of the Mersey, it marks the junction of two great highways, the one running east and west between Manchester and Liverpool, and the other running north and south between Wigan and Northwich.

To-day Warrington is a place of some 70,000 inhabitants, ever widening its sphere of industrial activity. Of some of its businesses, indeed, it may fairly be said that they increase by leaps and bounds. Chief among its industries are wire-drawing, the manufacture of iron bars, hoops, and wire rods, gas stoves and heating apparatus, as well as of files and tools, while it has long been celebrated for its piano wires, which have an European reputation.

There are large and extensive forges, iron foundries, chemical works, and mills; and it is also the centre of the Northern tanning trade for heavy sole leather—a great part of the leather used in the boots and shoes made for the Army and the Police being manufactured in the neighbourhood. There are also manufactories of soap and by-products.

As for its breweries, they are celebrated in the old Lancashire rhyme:—

Your doctors may talk of their lotion,
  And your ladies may talk of their tea;
I envy them none of their potions,
  A glass of good stingo for me.
The doctor may sneer if he pleases,
  My recipe never will fail;
For a physic that cures all diseases
  Is a bumper of Warrington ale.

Other factories include those for pins, borax, table and decorative glass, bedsteads, rubber, white leads, articles made from wire, glycerine, scent, and many another article besides.

It follows, therefore, that the Goods Traffic at Warrington is of a very catholic and wide embracing nature; a fact of which the truth is demonstrated by a brief inspection of the contents of the Great Central Railway's goods warehouse in the town. There are samples of almost every conceivable commodity stored on its extensive floors, and the traffic dealt with is not less remarkable for its varied nature than for its extent.

The Warehouse occupies an extensive site, and is remarkable not only for its convenient situation, but for the suitable manner in which it is arranged. The triple road is furnished with hydraulic capstans and traversers, facilitating the smart manipulation of goods, while the six cranes—four of 30-cwt. power and two of 2-ton power—with which the stages are provided, make it possible to load and unload goods with the greatest possible expedition.

Overhead there are two large floors for storage purposes, about 200ft. by 75ft. in area, and the building is equipped with six outside hoists for dealing with carted traffic, and three inside hoists for the direct loading and unloading of wagons.

In the fireproof building are stored immense quantities of all kinds of merchandise, from leather and tanning materials to grain and cement.

From the Warehouse one steps into the surrounding Goods Yard, which is of very large extent, and well adapted to the prompt handling of all traffic. It includes a cattle dock, where the receipt and despatch of live stock is carefully attended to. The yard is equipped with two stationary cranes of 10-ton and 5-ton capacity respectively, and there is also a 30-cwt. movable crane.

The Great Central Company also possesses additional facilities for the handling of traffic at the Whitecross Wharf westward of Warrington station, on the Liverpool line. This is situated conveniently to many works, and enables traffic from the latter to be promptly dealt with. Shed accommodation and crane power are provided.

The Warrington "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Warrington, can be obtained free on application to the Company's Goods Agent, Warrington Station, the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

WIDNES

STANDS on the banks of the Mersey opposite Runcorn, and is the largest centre of the Alkali and Chemical Trade. In addition, it possesses large and important works for the manufacture of Copper, Soap, Patent Manure, Iron, etc.

Nearly the whole of the works are connected by rail, and the Great Central Company has access by means of a junction with the Lines of the Hutchinson's Trustees.

At the West Bank Dock vast quantities of Coal are shipped, and the Company's facilities for dealing with the traffic provide for the most expeditious transit. Other commodities in large quantities are also shipped here, and inward vessels, besides bringing in raw materials for the works at Widnes, convey a variety of traffic, which is sent away by rail.

The Great Central Company has excellent arrangements for the collection and delivery of goods by cart, including traffic to and from Runcorn via the Transporter Bridge.

Warehouse accommodation and crane power up to five tons are provided.

The Great Central route connects Widnes with the principal industrial centres at home as well as with the Continent, through the ports of Grimsby and Immingham.

The Widnes "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Widnes, can be obtained free on application to the Company's Agent at Widnes, the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

WREXHAM.

THIS is one of the chief centres in the Western Area of the Great Central Railway System, and enjoys the appellation of the "Commercial Metropolis of North Wales."

Commercially, Wrexham ranks as the focus of an important district, and has the advantages of a ready means of access by the Great Central Line to the large docks on the Mersey and Dee, and rapid transport facilities to the Commercial Centres of the North and Midlands.

In the immediate neighbourhood are well known Collieries and Iron Works, while in Wrexham itself the trade interests are somewhat divided. Tanneries, Breweries, Paper Mills, etc., hold the chief place, while a large business is carried on in Corn.

There are two passenger stations and a goods station, at which every provision has been made to meet the requirements of Traders in the District.

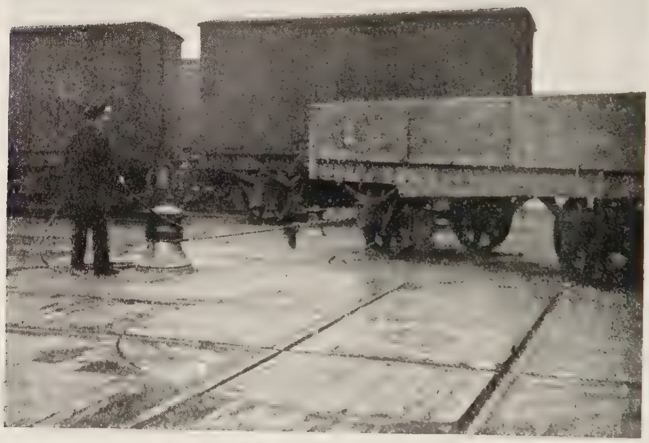
In the vicinity of Wrexham, Brymbo is connected by a branch line with the Wrexham to Liverpool main route. Here the industrial features are large Steel and Chemical Works. Coal in enormous quantities from the neighbouring collieries is dealt with at the adjoining Stations of Plas Power, Gwersyllt and Cefnybedd.

Still following the main line, Connahs Quay is soon reached, Buckley, an important centre for the manufacture of Bricks and Terra Cotta, being passed en route.

Connahs Quay is a town and shipping port of rising importance, mainly through the establishment of Iron and Chemical Works at Hawarden Bridge. It is situated about seven miles down the river from Chester, and the Docks are owned and worked entirely by the Great Central Railway Company.

Bricks, Tiles and Patent Manures form the principal exports, and Iron, Cement, Clay, Timber and Grain the imports.

Ample warehouse and wharfage space is provided.



SHUNTING WAGONS BY CAPSTAN.

The Wrexham and District "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Wrexham and District, can be obtained free on application to the Company's Agents at the Stations, the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

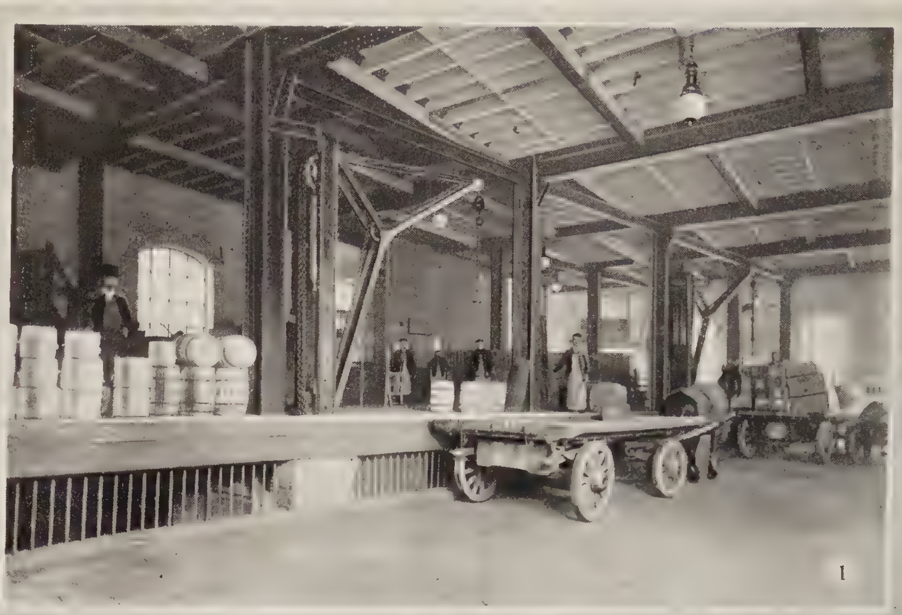
Liverpool

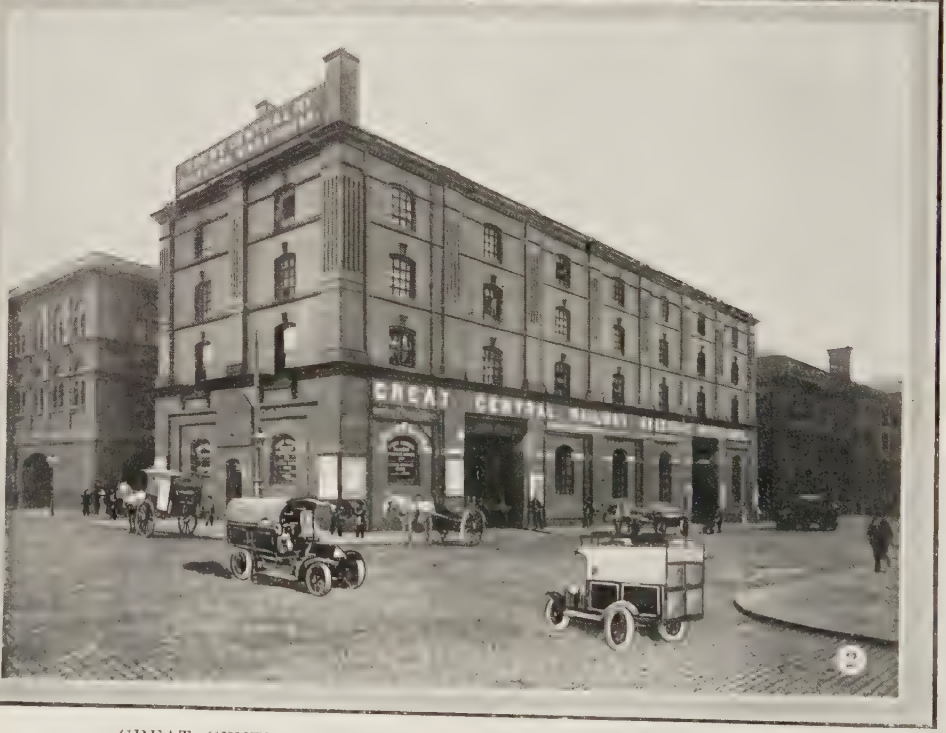
England's Western Gateway

THE Mersey Port enjoyed the advantage of railway communication at a very early date, and it is partly due to this fact that Liverpool has become one of the great distributing centres of the World. At her docks and quays are berthed ships which fly every flag, and sail in every sea.

A visit to the port is a revelation of the wide-spread character of International Trade. Cotton cargoes from the new world, corn from the Argentine, from Russia, from Canada, iron ore from Spain, wool from our Colonial possessions, spices from the East, timber from a thousand forests, and manufactured and partly manufactured goods from the trading communities of the wide world—all these pour into Great Britain through the gateway furnished by the port of Liverpool.

From the holds of a great mercantile fleet, these varied cargoes pass into the hands of the railways for distribution over the vast area served by the port, and return cargoes flow in an unending stream back to Liverpool for export.





GREAT CENTRAL WAREHOUSE, HOOD STREET, LIVERPOOL.

1.—Section of Interior of Warehouse.

2.—Exterior View.

These are some of the features, rather than local industries, from which the fame of Liverpool has sprung. It is not that local manufacturing enterprise is non-existent. The huge shipyard at Tranmere Bay, and at Port Sunlight the old-established soap works, are a reminder that such is not the case.

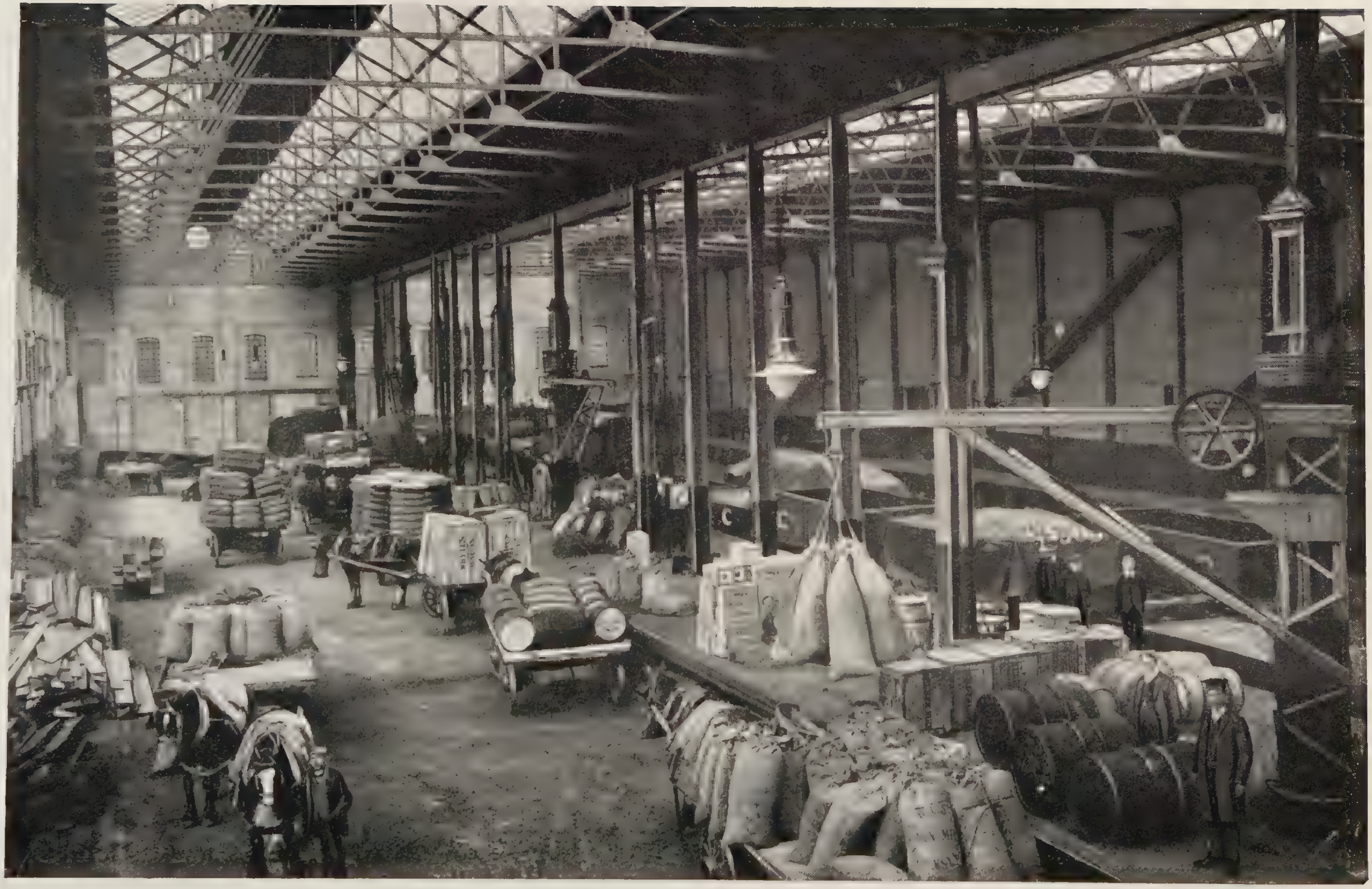
The very history of Liverpool reads almost like some fairy tale of an enchanted city miraculously created in a single night. A comparison of the Port as it was a couple of centuries ago with its present state gives no little cause for astonishment.

The first Dock was built and opened in 1700, the ships at a period subsequent numbering 84, manned by some 900 sailors, while the average number of ships entering the port each year was 350. For some time the first dock, with a graving dock, was sufficient for the trade of Liverpool, which partly consisted in those days of slave traffic to the West Indies; but in 1738 a second was made.

Then the opening up of the Irwell and Weaver, and the cutting of the Duke of Bridgewater's Canal, caused so great an increase in business that a third, the Duke's Dock, was added, to be followed by others in rapid succession, until now the Mersey **for six miles** is lined with an uninterrupted series of docks, out of which vessels sail to all parts of the World.

At the present day, the annual receipts of the Liverpool Dock Board average about a million and a third sterling, and yield a net annual profit of about £280,000.

There is not space here, nor is it indeed needful, to give a comprehensive enumeration of all these docks, the frontage of whose quays has been estimated to exceed 32 miles, and to which further extensions are to be made in the immediate future at a cost of something like 4½ million



GREAT CENTRAL GOODS DEPOT AT ALEXANDRA AND CANADA DOCK.

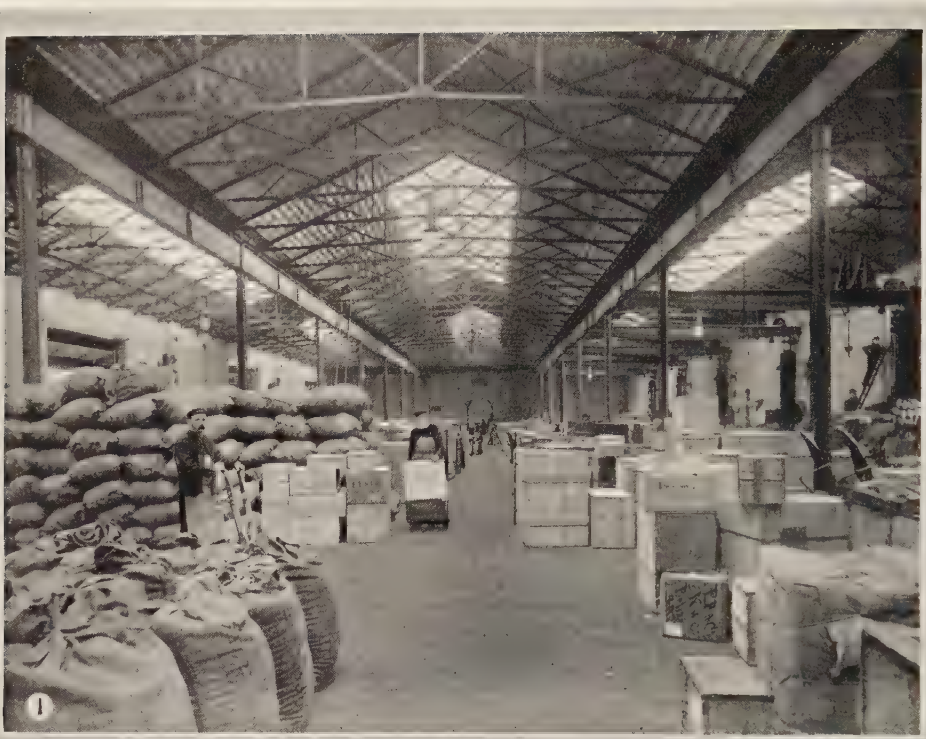
pounds. Each has its own peculiar characteristics, but special mention may be made of the Albert Dock, nearly 8 acres in extent, opened by the Prince Consort in 1845, the Huskisson Dock with an area of 32 acres, used by steamers engaged in the American, Canadian, and Egyptian trades; and the Canada, Alexandra, Langton, and the Great North Docks, in which are to be found the great Atlantic Liners.

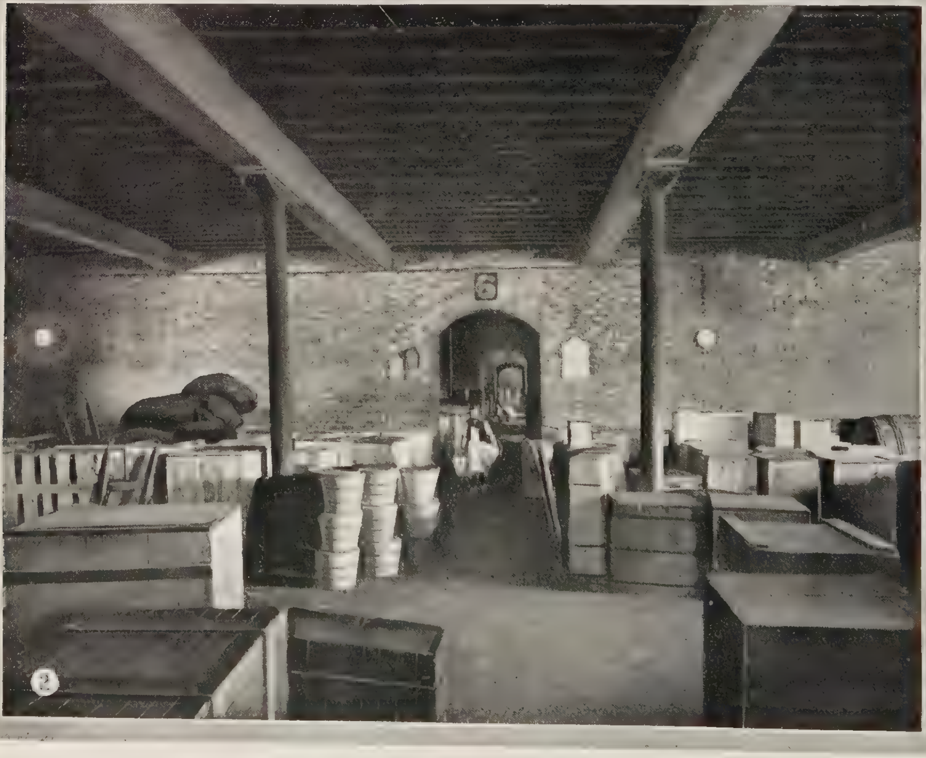
The whole of the Dock Estate is managed by a public body under the title of the Mersey Docks and Harbour Board. A railway runs along the whole length of the docks, and many of the berths are provided with sidings to enable cargoes to be transferred direct from railway wagons to the ships. The Great Central Company's Stations in Liverpool have rail connections with the lines on the Dock estate.

The great call for goods depôts arises chiefly from the large tonnage which is landed on the quays of Liverpool, and the Great Central Railway has been mindful of its responsibilities to Liverpool and to the great towns to which its system forms the best and most natural route.

In the very heart of the Liverpool Docks the Great Central Company possesses three extensive goods stations. These are "Alexandra and Canada Dock" and "Huskisson" at the North end, and "Brunswick" at the South; and to make a tour of either is to receive a lesson not a little impressive upon the pregnancy of those two words—"Per Rail."

In the vast goods warehouses of the Great Central Company at Liverpool are stored immense quantities of all kinds of merchandise, lying there in safety awaiting the owners' instructions.





1.—HUSKISSON WAREHOUSE. 2.—BRUNSWICK WAREHOUSE.

ALEXANDRA & CANADA DOCK STATION.

Another station for goods traffic which the Great Central Company, keeping up its "Forward" policy, has acquired is the very valuable site in Regent Road, Bootle, at the North end of Liverpool, and adjacent to the most important docks, such as the Hornby, Alexandra, Canada, Huskisson, etc., where the American and other liners have their berths. Here is now erected a large Goods Depôt, for dealing with outward traffic.

One of the principal features of modern requirements in the Transport Industry is the provision of Cold Stores for the preserving of frozen meat, poultry and other foodstuffs.

The development of this system has been very rapid during the last few years, and is now an indispensable factor in connection with the people's food supply.

Adjoining the Alexandra and Canada Dock Station stand the premises of the Imperial Cold Storage, where enormous quantities of frozen meat, etc., are dealt with. The meat is brought direct from the Ship in specially built insulated vans, and Railway Refrigerator Cars run alongside the Store to convey the traffic to all parts of the Kingdom.

The warehouses at

HUSKISSON

provide storage for all classes of Shipping Traffic. Special portions are reserved for cotton and oil, accommodation of the very best description is furnished for grain, fruit, flour, and provisions on the numerous floors; while the cellars of the basements are admirably suited for goods requiring cool storage, such as casks of fat, oil, etc.

A separate Timber depôt, covering a wide area and equipped with powerful travelling cranes, makes it possible to deal easily with the largest consignments of timber, while the cattle docks, which are situated apart, are of an extent that allows of the simultaneous loading of a whole train, and are peculiarly well adapted for dealing with the considerable shipments of Irish and other live stock which come into Liverpool.

BRUNSWICK STATION.

The Brunswick Station has the distinction of being the only station in Liverpool capable of dealing with coal, whether for cargo or bunkering, for shipment from the important Herculaneum Dock. Wagons are taken under the hydraulic hoist, and emptied direct into the vessels. In addition to the Shipping traffic for the South End Docks the bulk of the goods sent from and to the numerous traders in Liverpool passes through this station, and the excellent accommodation provided by the Company is equal to the heavy demands made upon it.

The storage arrangements for goods traffic are in every way admirable, and better even than those provided at Huskisson. The fireproof warehouse is large and adequate to every need, crane power up to 40 tons being provided.

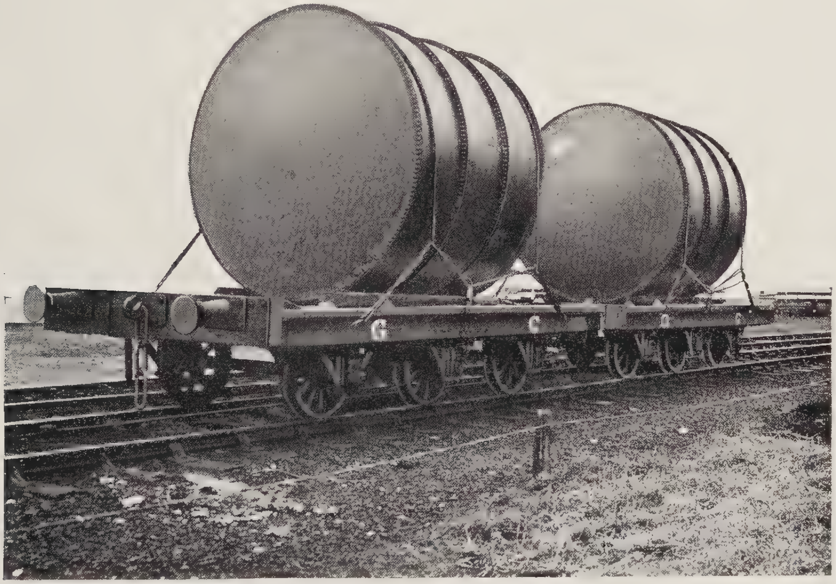
HOOD STREET DEPÔT.

At Hood Street, in the heart of the City, is another large Great Central Railway warehouse and receiving depôt. This is designed and built upon the most modern principles, and is conveniently situated in the centre of the provision, fruit, and other trades. The basement, which has a concrete floor, is cool and airy, and suitable for the storage of bacon, butter, lard, cheese, etc., while the three upper floors, being light, clean and dry, offer exceptionally fine accommodation for goods of every description. The warehouse is lighted throughout by electricity and is equipped with numerous hydraulic hoists and cranes.

CITY OFFICES.

The offices of the Great Central Railway in Liverpool are at 6, India Buildings, Fenwick Street. Here the clerical work attendant upon the extensive Liverpool goods traffic is performed, and every information as to rates, trains, etc., can be obtained. Bills of Lading are carefully and expeditiously dealt with, and all kindred business undertaken.

The Company has an excellent organization for the collection and delivery of goods in Liverpool.



GLASS-LINED BEER TANKS.

The Liverpool "Per Rail" Supplement, containing a list of Offices in Liverpool at which Goods and Parcels are received, also a list of Stations to which the Great Central Railway Company can carry merchandise from and to Liverpool, can be obtained free on application to the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

BIRKENHEAD.

BIRKENHEAD possesses many extensive Shipbuilding Works, including those of world-wide reputation. Its docks, though not to be compared, of course, with the imposing array upon the other side of the Mersey, are numerous, and in them steamers load for India, China, Japan, Burmah, Java, South Africa, etc.

The Great Central Company's principal Goods Depôt in Dock Road, known as the

BIRKENHEAD DOCK ROAD STATION,

is constructed on the very latest principles, the most modern improvements having been introduced, and nothing will be found wanting for dealing with merchandise of all descriptions, both for dock and town, while every facility is afforded for prompt handling and delivery.

There is a spacious warehouse, lighted by electricity, and fitted with electric cranes, permitting of goods being loaded and unloaded under cover, and in addition to this a 30-ton electric Goliath travelling crane has been installed for handling heavy weights such as boilers, machinery, etc. There is also ample dock accommodation for dealing with furniture vans on wheels, carriages, portable engines, machines on wheels, etc., and good cattle pens are provided.

The Station is adjacent to the extensive Grain Warehouse of the Mersey Dock and Harbour Board, also Flour Mills, Iron Works, Oil Stores, etc., and wagons can be placed direct into the whole of the private sidings connected with these places. Direct rail connection with the Mersey Dock and Harbour Lines exists, which enables the Great Central Company to collect and deliver traffic to and from the whole of the berths on the Birkenhead Dock Estate.

The Station will also be found most convenient for traffic for the growing districts of Seacombe, Liscard, etc.

The Great Central Railway Company has also an important goods station in Birkenhead at

SHORE ROAD,

with crane power to lift up to 40 tons. The situation is good, being adjacent to the docks, and also to the lairages, in which wagons can be placed for direct loading of the fresh meat that forms so important a feature of Birkenhead traffic.

Large warehouses afford ample and excellent storage space for grain and general goods, every facility being provided for dealing with all kinds of merchandise and minerals either for shipment or town. The Company's wagons are run directly alongside the steamers, the utmost expedition in the handling of traffic being thus made possible.

Another of the Great Central Company's Depôts at Birkenhead is at

DUKE STREET STATION,

which besides being well adapted for full loads of traffic, forms an extremely useful depôt for dealing with coal for export by steamers sailing from Birkenhead.

At Bidston there are special stock sidings, from which the traffic is worked to the docks, and the wagons are placed under the tips as required in the most expeditious manner.

The Birkenhead "Per Rail" Supplement, containing a list of Stations to which the Great Central Railway Company can carry merchandise from and to Birkenhead, can be obtained free on application to the Great Central Goods Agent, Dock Road Station, Birkenhead, to the Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool, or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.

Ireland

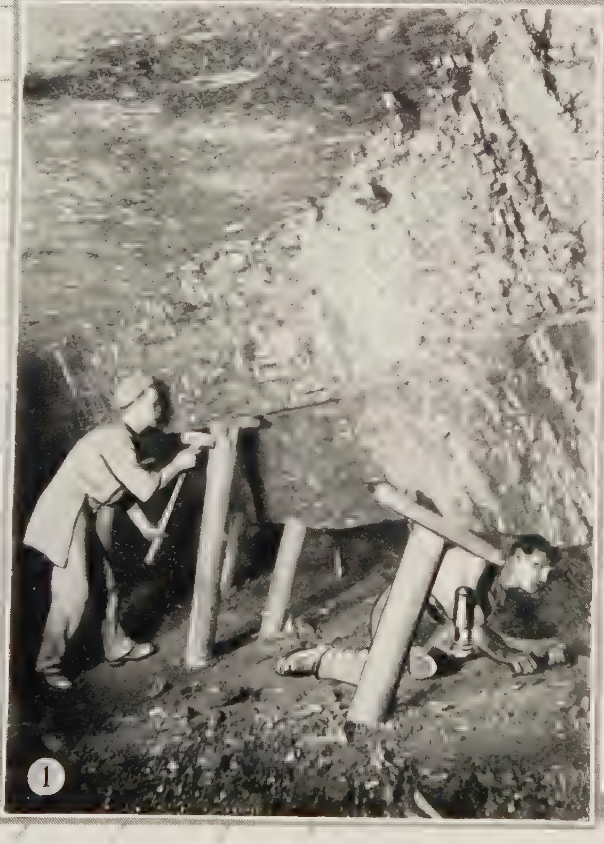
CONSIDERABLE development is destined to take place in the trading relations between the Sister Island and the Great Central Railway. The main features of Irish trade, in a broad, general sense, are agriculture and fishing, but the North of Ireland is remarkable for the high degree of development attained in special industries. From the famous Belfast Shipyards have been launched the largest vessels which have yet been built, and the import of the material for these yards represents a great tonnage of iron and steel. The province of Ulster is also the seat of a great textile trade. Woollens were manufactured here generations ago, and this industry was succeeded by the production of the famous Irish linens, and the trade is now extended to include flax, hemp, cotton, jute and silk. In a totally different branch of enterprise, that of brewing and distilling, Irish houses have won a distinct reputation.

Irish traffic is chiefly dealt with through Liverpool, at which port the Great Central Railway Company possesses the most complete facilities for prompt transfer between railway station and steamer. Dublin traffic is loaded in direct railway wagons to and from the dock. Agricultural produce is handled with the utmost promptitude, while for the reception and care of cattle, sheep, pigs, etc., a special staff is maintained. Consignments of live stock are met upon arrival, and, after resting in suitable pens, are despatched by the most expeditious means to destination.

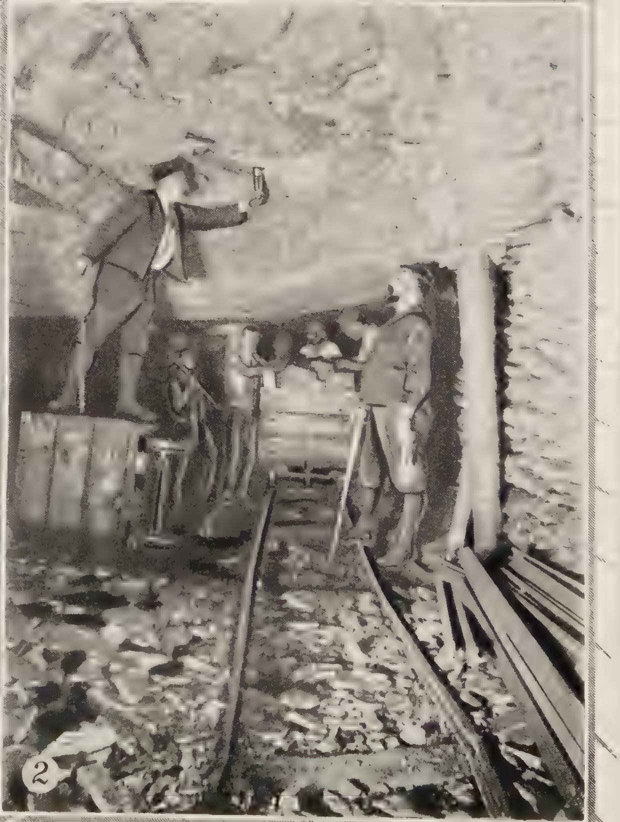
The bulk of the merchandise is from England to Ireland. Goods are forwarded by all the steamboat routes, the principal sailings being from Liverpool to Dublin, Belfast, Cork, Waterford, Londonderry, etc. There are also regular sailings between Manchester and Dublin, and Manchester and Belfast, for which the Great Central Route affords the most direct and quickest service.

The Company's Chief Office in Ireland is at 5, North Wall, Dublin, and they have also offices at 10, Bedford Street, Belfast, Railway Chambers, King Street, Cork, and Waterloo Place, Londonderry, where every information can be obtained. Enquiries can also be made in Dublin at 9, D'Olier Street and 18, Lower Ormond Quay, where the Company's Agents, Messrs. Dean & Dawson, supply all information with regard to passenger traffic. Passengers are also booked at the City of Dublin Steam Packet Co.'s Offices, Nos. 15 and 16, Eden Quay, and 19, North Wall, the latter being opposite the Steamers' berth.

The Irish "Per Rail" Supplement, containing a list of Stations in Ireland from and to which the Great Central Railway Company can carry merchandise, can be obtained free on application to the Company's Local Agents at 10, Bedford Street, Belfast; Railway Chambers, King Street, Cork; Waterloo Place, Londonderry; Dundalk and Newry Steam Packet Company, Dundalk and Newry; The Clyde S. S. Company, Waterford; The Company's Chief Agent, 5, North Wall, Dublin; or to the Chief Goods Manager, Rossmore Road, Marylebone, London, N.W.



1—MINERS "HOLING" THE COAL.



2.—TESTING FOR "GAS" WITH SAFETY LAMP.

(*Reproduced by permission of Messrs. Reynolds & Branson.*)

The Coal Mining Industry

> “*Every basket is power and civilization. For Coal is a portable climate. It “carries the heat of the tropics to Labrador and the polar circle; and it is the “means of transporting itself whithersoever it is wanted.*
>
> “*Watt and Stephenson whispered in the ear of mankind their secret, that “a half ounce of coal will draw two tons a mile, and coal carries coal, by rail “and by boat, to make Canada as warm as Calcutta, and with its comforts brings “its industrial power.*”—Emerson on “The Power of Coal.”

FROM its earliest days the Great Central Railway Company realized the truth of Emerson's words and laid itself out to deal with the distribution of the vast mineral wealth underlying the districts it served, with the result that to-day it has direct access by its own lines to the coal fields of Yorkshire, Derbyshire and Nottinghamshire; Lancashire and Cheshire; and Denbighshire and Flintshire. The output of coal from these for the year 1911 was over 95 million tons or rather more than one-third of the total coal output of the United Kingdom. The Great Midland Coalfield which extends into the Counties of Derbyshire, Nottinghamshire and Yorkshire is without doubt the premier coal producing area of the United Kingdom, not only for the variety and quality of its coal seams but for the extent of its developed and undeveloped resources.

OUTPUT OF COAL BY COUNTIES IN 1911.

	Tons.
Cheshire	**306,180**
Cumberland	2,296,254
Derby	**17,164,490**
Durham	41,718,916
Gloucester	1,436,200
Kent	150
Lancaster	**23,674,634**
Leicester	2,860,497
Monmouth	13,798,747
Northumberland	14,682,427
Nottingham	**11,623,250**
Shropshire	815,194
Somerset	1,161,023
Stafford	14,047,758
Warwick	4,893,483
Westmorland	1,185
Worcester	615,333
Yorkshire	**39,135,418**
Total for England	190,231,139
Brecon	776,486
Carmarthen	2,115,311
Denbigh	**2,679,686**
Flint	**763,392**
Glamorgan	33,463,974
Pembroke	46,209
Total for Wales	39,845,058
Total for Scotland	41,718,163
Total for Ireland	84,564
Gross Total for United Kingdom	271,878,924

The Midland Coalfield may be divided into two portions, an exposed portion where the coal measures are at the surface, and a concealed portion where the coal measures dip under the newer geological formations.

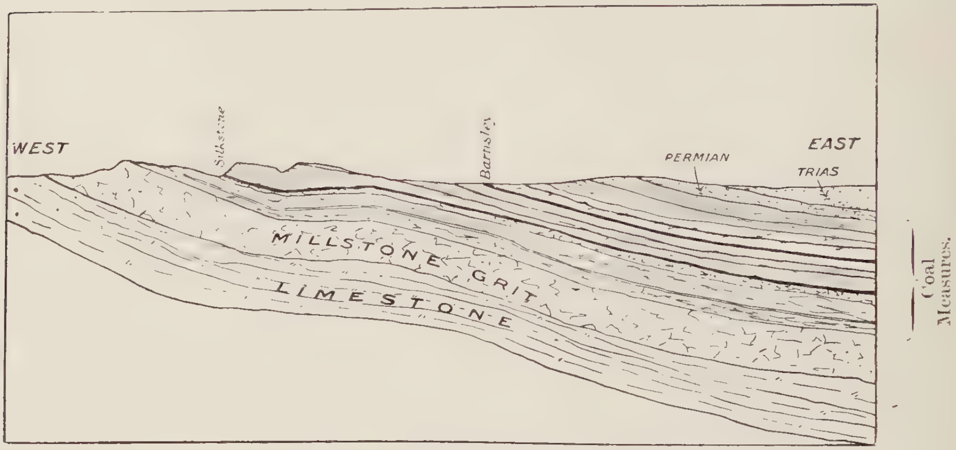
The coalfield extends from Leeds and Bradford on the North, to a few miles South of the town of Nottingham, a distance of over 60 miles. On the West the coal seams outcrop against the Millstone Grit, and the general dip of the strata is to the East, so that as one crosses over the coalfield from West to East the outcrops of the various seams are encountered in ascending order, until we pass from the exposed portion of the coal measures on to the Permian formation (which rests unconformably on the Carboniferous rocks), and then on to the Trias Formation.

The geological formation will be readily understood from the accompanying Section, and it will be appreciated that the coalfield may be likened to a novel which is "to be continued in our next," for the limit of extension to the East under the newer rocks is as yet undefined.

As far back as 1889 a boring put down at South Carr, which is situated in Lincolnshire some four miles from the Yorkshire County boundary, proved that the Barnsley Bed existed at a depth of 1,062 yards and so established the continuity of the Yorkshire Coalfield into Lincolnshire, while more recently a boring at Crosby, Lincolnshire, has proved the existence of coal measures twelve miles to the East of the present most Eastwardly sinking.

To go South, boring operations at Newark have proved the existence of workable coal in the County of Notts eleven miles East of the most Eastwardly development.

An examination of the colliery map will show the reader the extent of the undeveloped coal resources of the Midland Coalfield. The question of the available coal resources in the coalfields of the United Kingdom was the subject of an exhaustive enquiry by the Royal Commission on Coal Supplies, which published its report in 1905, and gave as the available coal resources of the *proved* coalfields of Yorks, Lincoln, Derby, and Notts, 26,000 million tons, while the resources of the concealed and unproved coalfields in the same counties were estimated at 23,000 million tons, giving a total available tonnage of approximately **Fifty Thousand Million Tons,** sufficient at the present rate of production to last **740 years.**



DIAGRAMMATIC SECTION ACROSS MIDLAND COALFIELD.

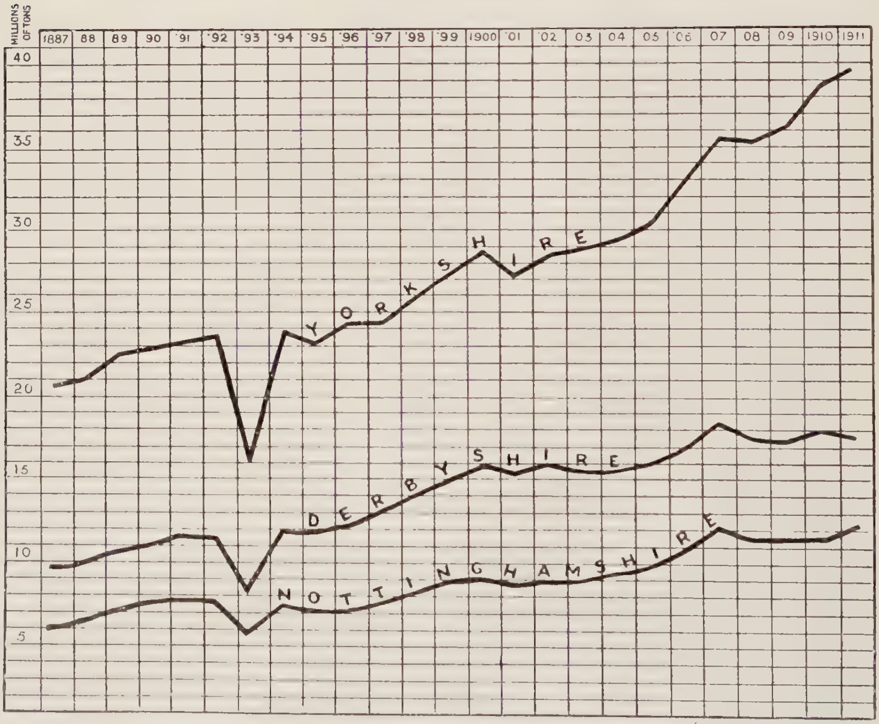


DIAGRAM SHOWING COAL PRODUCTION, 1887-1911.
YORKSHIRE, DERBYSHIRE AND NOTTINGHAMSHIRE.

DEVELOPMENT OF THE MIDLAND COALFIELD.

The growth in output during the last 20 years has been remarkable, and can mainly be attributed to the fact that the railway accommodation has always been in front of the Eastwardly advance of the line of development.

The diagram on the opposite page shows the rate of increase of production since 1887 for the three counties, the steepness of the thick black line being very marked in the case of Yorkshire, where during the last 10 years no fewer than ten new collieries have been sunk to the well-known Barnsley Bed Coal, each capable of drawing a million tons per annum. At the present time there are being sunk (or else the sinking has just been completed and the seams are being opened out) the following pits :—

NAME OF FIRM.	*SITUATION.*
Staveley Coal and Iron Company Ltd. (Yorkshire Main)	Edlington
Pease and Partners	Thorne
Bullcroft Main Colliery Co. Ltd.	Bullcroft
Hatfield Main Colliery Company	Stainforth
Askern Coal and Iron Company Ltd.	Askern
Rothervale Collieries Ltd.	Thurcroft
Maltby Main Colliery Co. Ltd.	Maltby
Manvers Main Collieries Ltd.	Barmborough
Rossington Main Colliery Co. Ltd.	Rossington

The objective in every case is the Barnsley Bed Coal, and the Great Central Railway Company—in the majority of cases by its own lines and in other cases by working arrangements with other lines—will have access to all these collieries, with their huge outputs of 3,000 tons or more a day. In the Southern (or Nottingham) portion of the Midland Coalfield, while the development has not equalled that of Yorkshire, there have been four large collieries sunk in the last ten years to the Top Hard Coal, and there are now in course of being sunk:—

NAME OF FIRM.	*SITUATION.*
Bolsover Colliery Company Limited	Clipstone
,, ,, ,, ,, ...	Rainworth
New Hucknall Colliery Co. Ltd.	Welbeck

while preparations are almost complete for the commencement of sinking operations at Letwell (east of Dinnington Colliery) and Harworth (east of Maltby Colliery).

Synonymous with this development of new collieries has been the sinking to and winning of other seams at the older collieries in the Western part of the Coalfield, with the result of giving them a new lease of life under the improved mining conditions obtaining to-day as compared with the days when the original shafts were sunk.

THE SEAMS OF THE MIDLAND COALFIELD.

The famous Barnsley Bed Coal of Yorkshire, which is correlated to the Top Hard Coal of Derbyshire and Notts and is being worked continuously from Nottingham to Barnsley, is probably the best known and most highly prized seam in the World; as a smelting coal and a locomotive coal and for use in liners and steam raising generally the seam is equal to the best Welsh coal.

YORKSHIRE COALFIELD.

List of principal seams correlated in West and South Yorkshire :—*

	WEST YORKSHIRE.		*SOUTH YORKSHIRE.*
	NAME OF SEAM.		NAME OF SEAM.
1.	Shafton or Billingley Seam	1.	Shafton
2.	Crofton Top, Sharlston Low	2.	
3.	Crofton Low, Sharlston Yard Coal	3.	Bagshaw Seam
4.	Wheatworth	4.	Swinton Pottery
5.	Steam or Bateson's Coal	5.	Newhill
6.	Woodmoor or Summer	6.	Melton Field or Wathwood
7.	Two Foot, Half-yard or Cat Coal	7.	
8.	Winter or Stanley Scale Coal	8.	Abdy
9.	Beamshaw, Stanley Main	9.	Kents Thin
10.	Mapplewell	10.	Kents Thick, High Hazels
11.	Warrenhouse, Gawthorpe	11.	Barnsley or Top Hard
12.	Haigh Moor, Netherton Thick	12.	Swallow Wood
13.		13.	Lidgett Seam
14.	Joan Coal	14.	Joan Coal
15.	Flockton Thick, Adwalton Stone Coal	15.	
16.	Flockton Thin, Forty Yards, Adwalton Black, Doggy, or Middleton High Main Coal	16.	
17.	Cannel or Stone Coal	17.	
18.		18.	Fenton Seam
19.	Old Hards, Firthfield, First Brown Metal	19.	Parkgate Seam
20.	Middleton Little, Green Lane Hard Band	20.	Thorncliffe Seam
21.	New Hards, Cromwell, Middleton Main Bright's Coal	21.	Swilley
22.	Wheatley Lime, Three Quarters, Middleton Eleven Yard Coal	22.	Silkstone Four Foot (only occasionally)
23.	Blocking, Barcelona	23.	Silkstone
24.	Beeston, Shertcliffe, Black Band or Top Lousey	24.	
25.	Whinmoor or Low Lousey	25.	Whin Moor
26.	Crow Coal, Fourteen Yards Band Coal	26.	
27.	Black Bed and Ironstone, Tinkers Coal	27.	
28.	Better Bed	28.	
29.	Eighty Yards Band Coal	29.	
29.	Forty Yards Band Coal	29.	
30.	Halifax Hard Bed	30.	
31.	Halifax Soft Bed	31.	
	Millstone Grit.		Millstone Grit.

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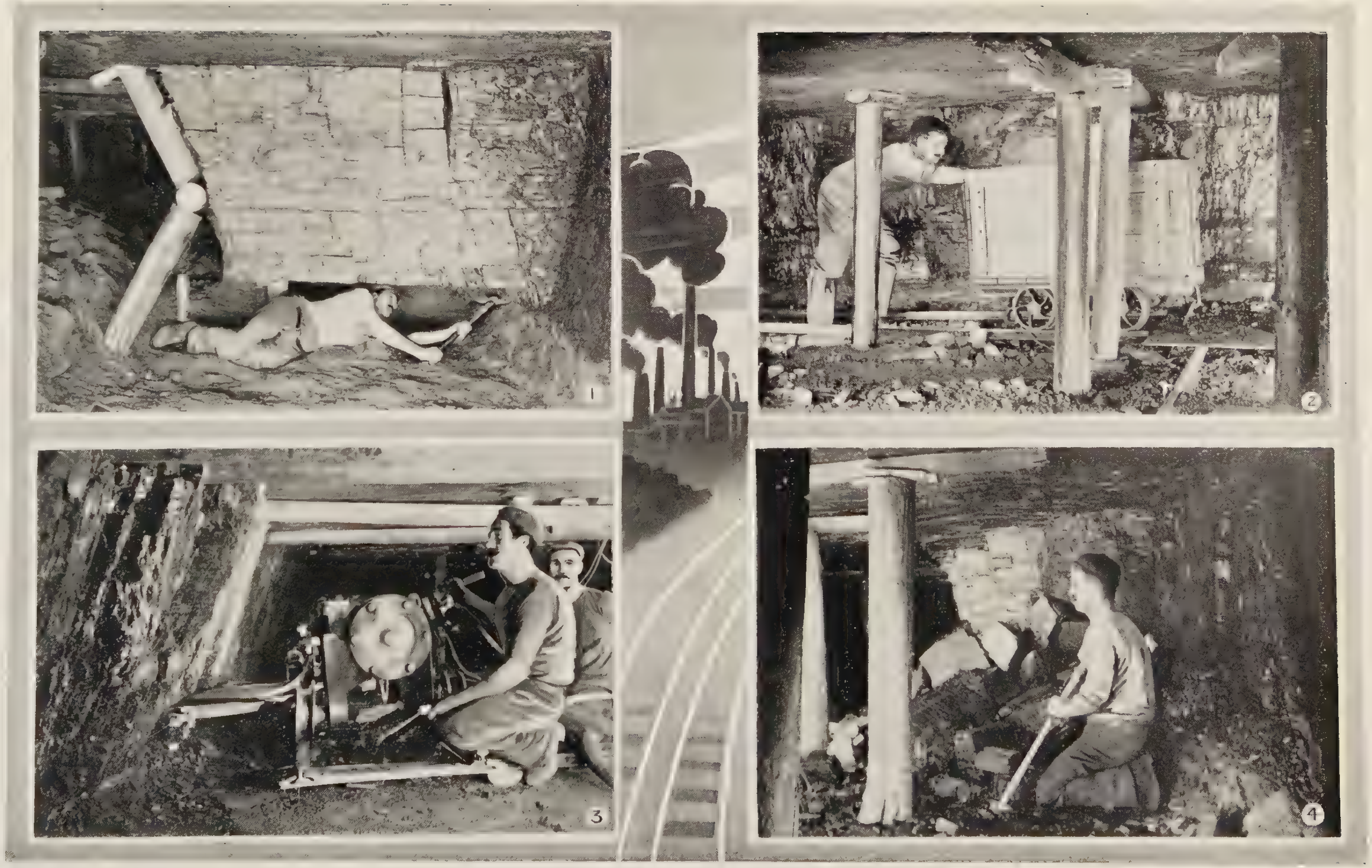
* Royal Commission on Coal Supplies, First Report.



MINERS WORKING UNDERGROUND.

1.—Undercutting by Hand. 2.—Underground Transport. 3.—Undercutting by Machine. 4.—Filling the Coal.

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ORDER OF SEAMS IN THE DERBYSHIRE COALFIELD.*

GENERAL SECTION.

MIDDLE COAL MEASURES :—

Manor Coal
Shireoaks Melton or Wath Wood Coal.
High Hazels Coal.
Top Hard Coal (Barnsley).
Dunsil Coal.
First Waterloo Coal.
Waterloo Coal.
Ell Coal.
Deep Soft Coal.
Deep Hard Coal (Parkgate).
Piper Coal.
Tupton, Furnace, or Low Main Coal.
Three Quarter Coal.
Yard Coal.
Blackshale, Clod or Silkstone Coal.

LOWER COAL MEASURES :—

Ashgate Coal
Kilburn Coal.
Naughton Coal.
Mickley Coal.
Ganister Coal.

Ranking next to the Barnsley Seam we have the Parkgate Seam of South Yorkshire, which is the same as the Deep Hard of Derbyshire and Notts—a first-class furnace, gas and coking coal; and the Silkstone Coal of South and West Yorkshire or the Black Shale of Derbyshire and Notts, a seam of exceptional purity and highly valued as a house, gas, steam and coking coal.

Space does not permit to dwell in detail with the many other excellent seams of this magnificent Coalfield, suffice it to say that the range of seams, both as regards quality and price, is sufficient to supply the wants of every industrial, commercial and domestic consumer.

* Syllabus of Lectures, University College, Sheffield.

Of the collieries of the Midland Coalfield and other coalfields traversed by the Great Central Railway much might be written, and the Company have in preparation a handbook dealing with the subject which will be of great importance to the coal shipper and coal consumer.

The mines of the Midland Coalfield vary in depth. In the West there are surface mines entered at the day, such as the important economic minerals of the lower coal measures which are worked in the valley of the Don, and the Halifax Hard and Soft Beds and the deposits of fireclay and ganister which accompany them, which latter not only go to line the furnaces of Sheffield, but into every iron and steel producing district in the country.

In the Eastern part of the Field are the deeper collieries, the recently completed sinking of the Yorkshire Main Colliery Company at Edlington being no less than 905 yards in depth to the Barnsley Bed.

The size of the collieries varies from the small plant with its score of miners, to the huge commercial undertaking employing its three to four thousand surface and underground employees, such as the Silverwood Colliery of Messrs. John Brown & Company with its 3,345 workers, forming the largest plant operating on a single seam in this country.

The Great Central Company welcomes all the feeders to its system, whether large or small, and endeavours to satisfy all; and as exemplifying some of the big problems of mineral transport, mention may be made of the huge tonnage of 26,986 tons of coal recently raised in six days at the Hickleton Colliery in Yorkshire.

With such outputs of mineral as these, the Company is assured that its new Immingham Coal Export Dock has come at a most opportune time; for the coal must go abroad and the export trade must be fostered and developed, if the continued prosperity of the Coal Trade is to be assured.

THE COKE MAKING INDUSTRY AND ITS BYE-PRODUCTS.

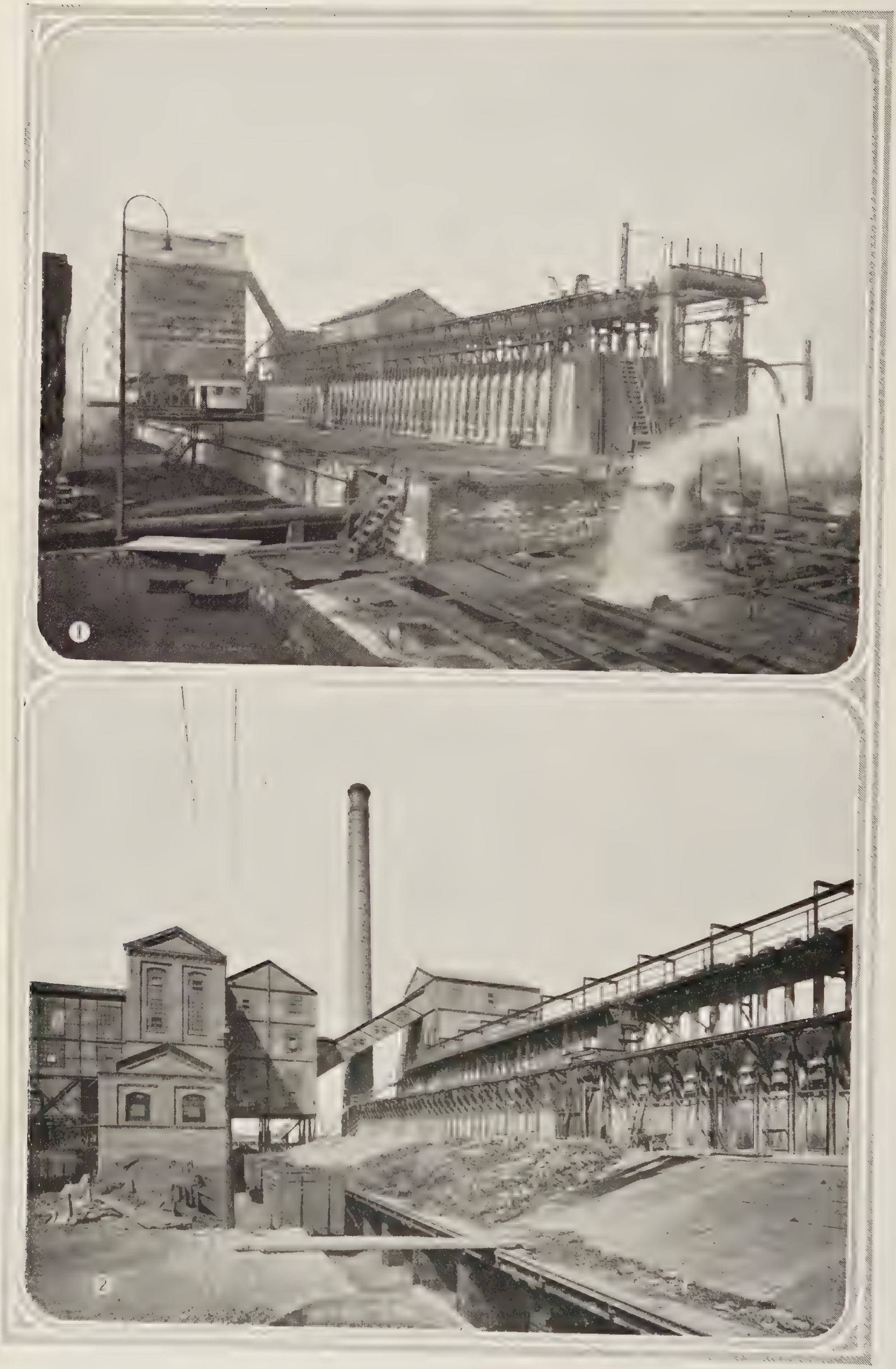
An important branch of the mining industry, and one that is destined to become of still greater importance, is the manufacture of Coke. All the modern Barnsley Bed Collieries have their battery of bye-product coke ovens, for the soft portion of the Barnsley Bed Seam is perhaps one of the best all-round coking coals, although there are several other seams in Yorkshire, Derbyshire and Notts which produce excellent coke.

It will come as a surprise to many to know that the first battery of coke ovens with recovery of bye-products on a commercial scale, was erected in this country by Messrs. Simon Carves as recently as 1882. Previous to that date the tar, pitch, benzol, sulphate of ammonia, etc., etc., which are now recovered were mostly wasted.

Information as to those collieries on the Great Central system in the Midland Coalfield where coke is made—with or without bye-products—may be obtained from the Company's Mineral Manager, Market Place Station, Chesterfield, and it is hoped that this will prove of some assistance to coke users, and to chemical works, agriculturists and others to whom the various bye-products of coke manufacture appeal.

THE LANCASHIRE COALFIELD.

Separated from the Midland Coalfield by the Pennine Range, geologists tell us that the coalfields were originally one, and indeed it is generally held that the Arley Mine of Lancashire is correlated to the Silkstone Seam of Yorkshire.



BY-PRODUCT COKE OVENS.

1.—View of Charging Side. 2.—Discharge Side.

The Royal Commission on Coal Supplies, already referred to, estimated the available resources of the proved Lancashire Coalfield at a little over 4,000 million tons, from which it will be seen that this coalfield has not such large reserves as the Midland Coalfield, which indeed are unequalled.

With an output of nearly 24 million tons per annum, however, the coalfield is one of great vitality, due to the large number of excellent coal seams which exist—at some collieries as many as ten being worked—and to the favourable position of the coalfield as regards the western ports. The collieries, which number in Lancashire and Cheshire 392, are largely in the hands of enterprising proprietors who, particularly in Lancashire, have recently spent large sums in bringing the plants up-to-date.

On the North and East the Lancashire Coalfield is bounded by the millstone grit (which is the base of the coal measures) but to the South and West it is overlaid by newer rocks, and extends in these directions. The seams dip very steeply to the South, however, and quickly attain depths at which they are unworkable, so that the chances of extension are slight.

It is worthy of note that at the Astley Green Sinking of the Clifton and Kersley Company, in the Southern part of the coalfield, the ultimate depth of the shaft to the Arley Mine will be 1,120 yards.

In the St. Helen's district the Ravenhead, Rushey Park, and St. Helen's main delfs are most sought after, while in the neighbourhood of Wigan, the Wigan and Orrell mines have been extensively wrought and contain excellent Cannel.

THE NORTH WALES COALFIELD.

This Coalfield comprises portions of the Counties of Denbigh and Flint. On the West the boundary of the coalfield is the millstone grit, but on the East the seams dip under the Permian Rocks, and east of Wrexham a new sinking has just been completed, at Gresford, to the Main coal, which proves to be of fine thickness and quality. Further sinkings are contemplated in this part of the coalfield.

There are some 54 mines at work in the coalfield, which shares with Lancashire the distinction of a very favourable geographical position as regards Liverpool and the export coal trade to Ireland and other parts through the Western ports.

COAL AWAITING SHIPMENT.

COAL TRAINS.

AS will be seen from the foregoing chapter, the Great Central Railway, passing as it does through the heart of the extensive coal fields of Nottinghamshire, Derbyshire, and South Yorkshire, is very largely concerned in the carriage of Coal. Many thousands of tons of this traffic daily pass over the Company's system from the various collieries to all parts of the country, and the transporting of this forms one of the chief features of the Company's operations.

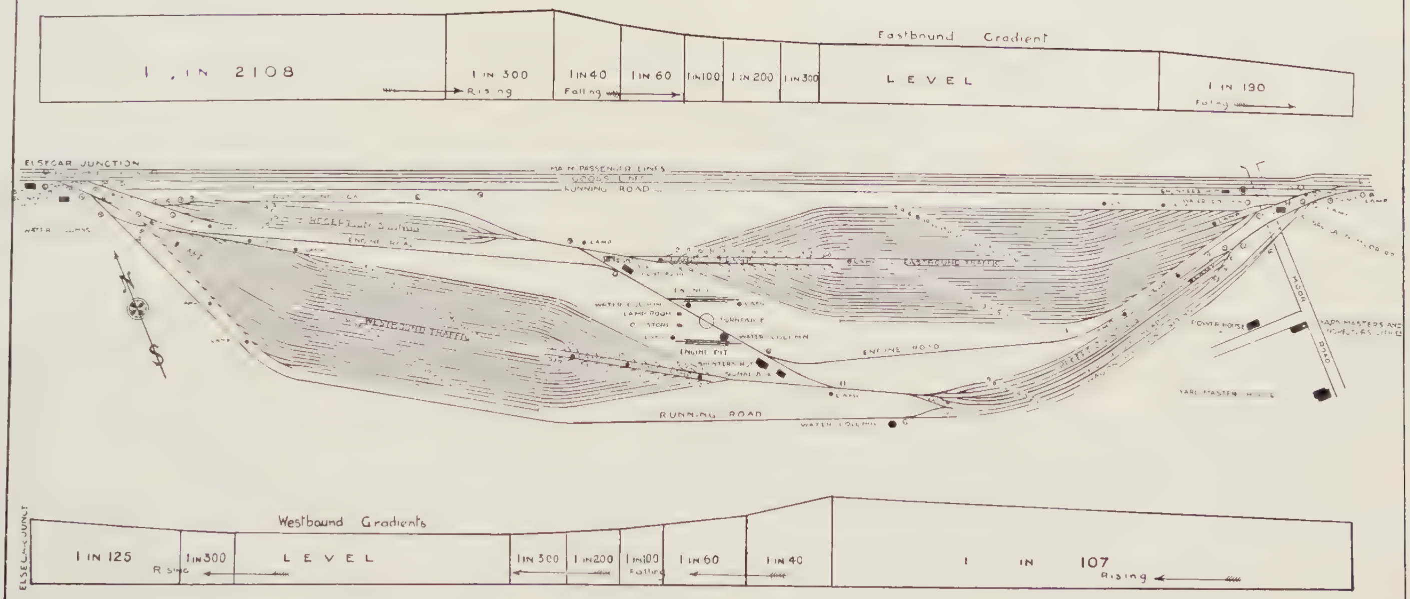
The output of Coal has within latter years grown considerably, and this has necessitated greater facilities for transit on the part of the railways, and the Great Central Company is well to the fore in this respect.

Engines of great haulage capacity have been built to deal with this coal traffic, enabling trains of great length and weight to be run, with the result that now there are numerous trains of this character running practically all over the system, the number of loaded wagons per train averaging 60, 70, or as many as 80.

It is not generally realised what an enormous quantity of traffic is moved by one of these trains, and it may be interesting to state that a train of 80 loaded 10-ton wagons conveys, in coal alone, no less than 800 tons, whilst if the weight of the wagons is added, it will be seen that the total weight of the train must reach, approximately, 1,300 tons, exclusive of the engine. As regards the length, this from the engine to the rear brake will measure upwards of 500 yards.

A train of this character may be looked upon as the "latest thing" in the way of Coal Trains, and aptly illustrates the Great Central Company's "Forward" policy.

G.C.R WATH. DIAGRAM OF CONCENTRATED SIDINGS



AN UNIQUE MINERAL SORTING DEPÔT.

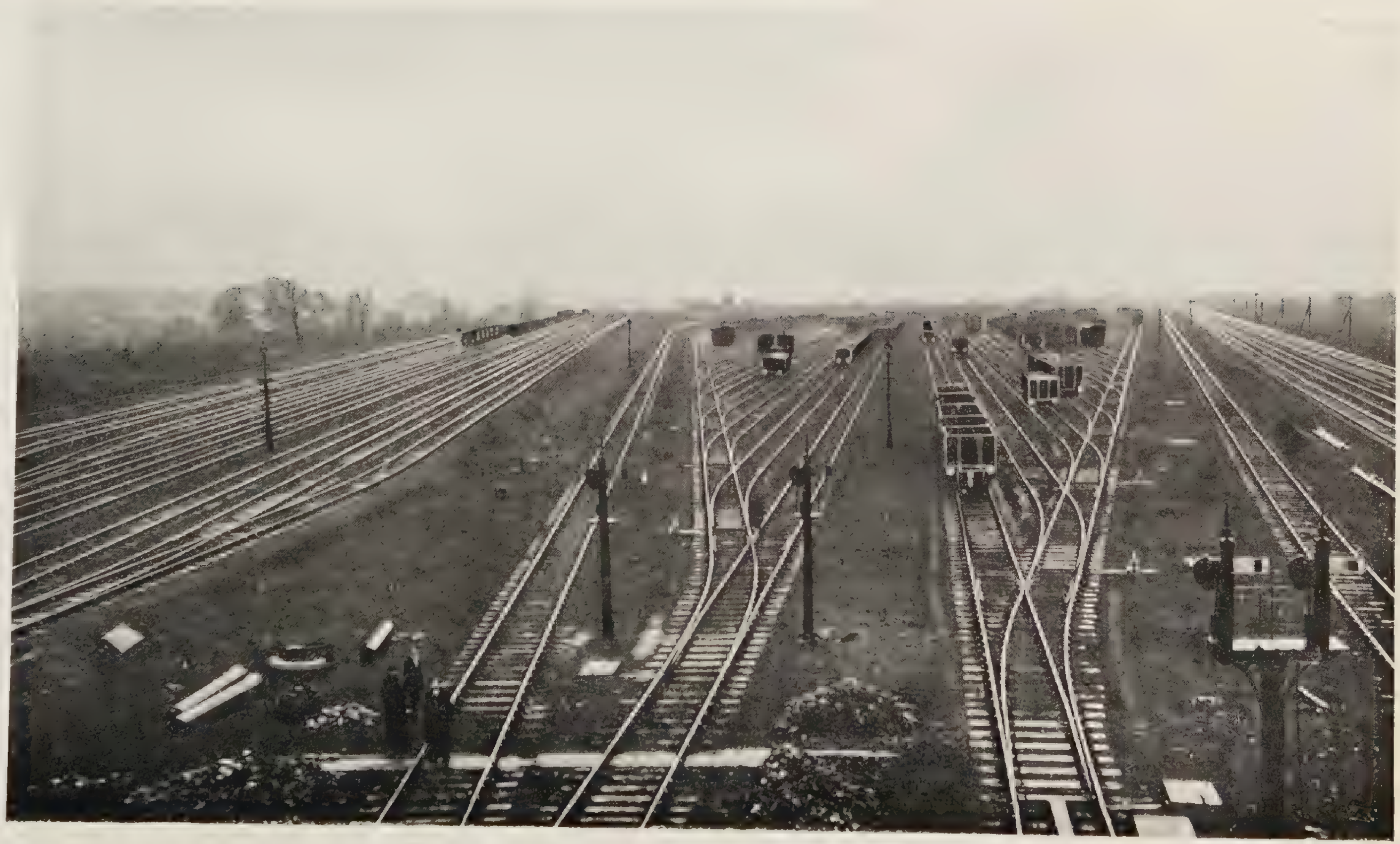
THE immense tonnage of Coal from the South Yorkshire Collieries which the Great Central Company was called upon to carry in the past frequently resulted in serious congestions. With the opening of new collieries and the increased outputs from the existing pits, it became imperative to establish a Depôt in the centre of this important Colliery District, where the wagons of coal could be properly sorted and marshalled into train loads for despatch to destination. The Great Central management decided on Wath as a suitable position, and here, as at the new Port of Immingham, the force of gravity plays an important part in the movement of wagons to their appointed places.

It will be seen by the diagram on the previous page that there are two complete sets of sidings working quite independently of each other. One set deals with East to West traffic, and the other with traffic from West to East.

For example, a train load of 75 wagons comes in from a neighbouring colliery on the East and slowly draws up to a signal post with one arm, which controls access to seven different reception roads and two running roads. No. 9 road, say, is empty, and the points are set to admit the train to No. 9; the same mechanical action that sets the points also causes a big figure 9 to appear on the signal post just under the semaphore (illuminated at night). The arm then drops, and the train proceeds on to a road constructed to hold 80 wagons. Here the train engine uncouples, and goes about its business, probably to the turntable in the centre of the yard, and then on to the end of the departure sidings ready to back on to a load. Meanwhile, a yard (shunting) locomotive has moved up to the back of the train, and pushes it up the hump, which, it should be said, is on a gradient of 1 in 107. The yardmen are busy uncoupling its several sections, and reading the destinations indicated on the sides of the wagons. Towards the summit of the incline all the seven roads and one running road converge, and unite in one single line about 350 feet in length.

This is called the "hump," and the ground slopes away to the West with a gradient of 1 in 40. The lines diverge again, fan-wise, into 30 different roads, the gradients of these commencing at 1 in 60 and varying to 1 in 100, 1 in 200, and 1 in 300, each corresponding with a fixed direction of destination. That is to say, No. 17 is used for traffic for the Lancashire and Yorkshire Railway via Ashton Moss, No. 25 for Oldham, No. 19 for Widnes and Liverpool via Chorlton, and so on. Nos. 29 and 30 are sidings for the reception of wagons required to be transferred from one hump to the other. The "fan" radiates from two principal lines, and the sidings on one side are known by odd numbers and those on the other by even. As the uncoupled train is backed up the "hump," the shunter reads the destination of each truck as it passes, and uses a code of whistles to guide the man in the box just adjacent. Units of numbers are denoted by short notes, and a long one means five. When, therefore, a truck, whose destination is No. 23 siding, is being pushed along the following signal is given ━━ ━━ ━━ ━━ — — — that is four fives, plus three, which tells the operator what to do. Then a slight bump from the engine, and the wagon goes down the bank, accompanied by the shunter, until it comes to rest in company with whatever other trucks have accumulated in that siding. At fixed hours these accumulations, amounting to a maximum of 75 trucks for a train, are dealt with according to time table or necessity.

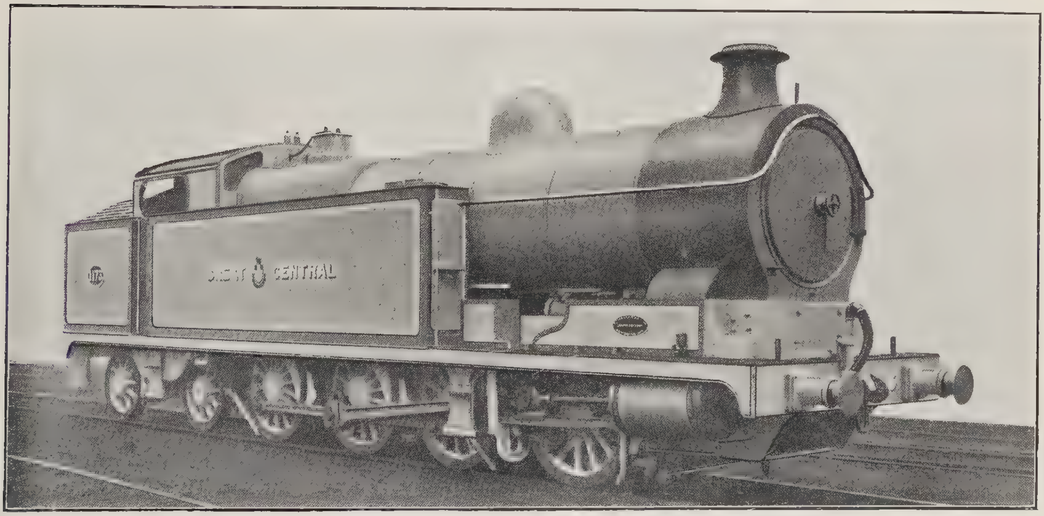
It may be imagined that if a truck came to a standstill before it had reached its goal, it might possibly be fouling some of the 15 sets of facing points, and in any case make things awkward for the truck that followed, destined for the adjacent road possibly. That is to say, a truck on its way to No. 23 might, as it runs down the hill, find a truck for No. 15 that had failed to get so far. This is improbable, but, nevertheless, the contingency has been foreseen and provided for. In the cabin at the summit there is a frame of 60 small "buttons," controlling the



BIRD'S EYE VIEW OF THE WATH CONCENTRATION SIDINGS.

30 roads, surmounted with a panel, in which are inserted 30 small spaces, the shape and size of a watch dial. Normally these spaces are all blank, but a truck destined for No. 29 siding would on its way "foul" fifteen successive sets of facing points, and this "fouling" is indicated by a red disc which appears in the appropriate space, but which disappears as soon as all is clear. Thus the course of the wagon down the yard is marked by a procession of red discs. This is effected by means of a weak electric current along the running metals, which are thus all "live" rails. This is what goes on without pause from midnight on Sunday to 6 a.m. on the next Sunday morning.

Precisely the same operation takes places at each "hump." In the case of a train from the East, the whole of which is Westward bound, everything is direct and straightforward, but should it happen that a train from the East is partially composed of trucks requiring to travel East, then these trucks have to be transferred from one hump to the other.



WATH YARD SHUNTING LOCOMOTIVE.

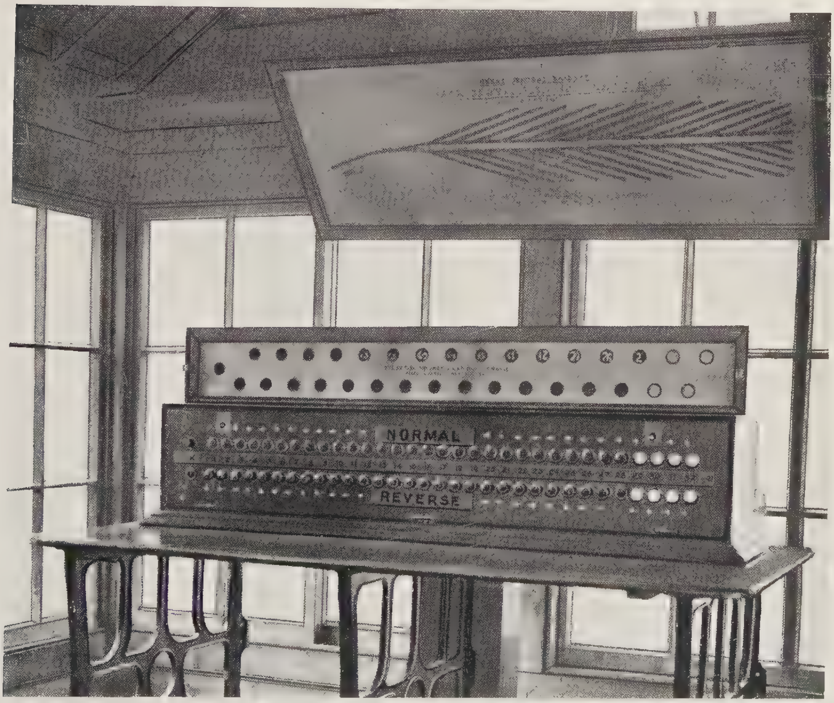
There are four cabins to control the yard traffic, one at each "hump" and one at each end. The two former are of the "push button" kind; the latter use small hand, or rather finger, levers, the motive power being the same all through — compressed air. The air compressors are located in a power house near the offices, and work at a pressure of 45lbs., on attaining which steam is automatically cut off till the air pressure goes down to 40, when it is similarly re-admitted. There is a pumping station, an artesian well having been sunk and a large capacity water tank erected, as also water columns at various points in the sidings. The air compressing machinery is provided in duplicate.

Only facing points are controlled from the cabins, trailing points being set by hand. The cabins are in telephonic communication, not only with each other, but with receivers placed at eleven other parts of the yard, thus allowing every departure from the normal conduct of traffic to be at once adjusted in communication with the shunters concerned.

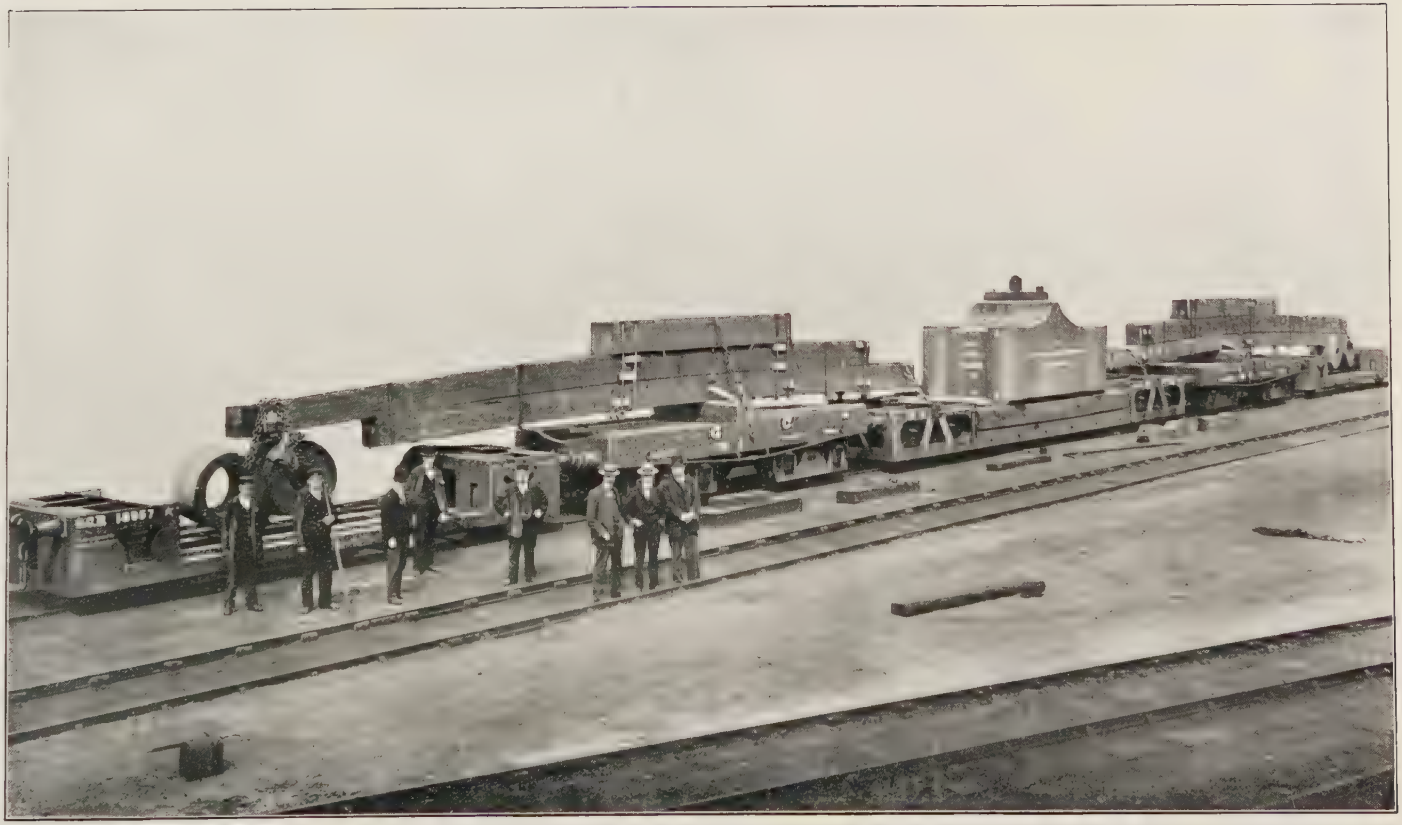
The yard is well lighted from standards, oil spray being the illuminant, the compressed air being supplied by hand pumps at each standard. For signal lamps, patent non-sweating Adlake lamps are used, which burn continuously for seven days without filling or any other attention, so that one lampman can operate seven miles of line. All this work is carried on by a comparatively small staff. The number of men on duty at any one time is but 35, and the whole staff numbers 101, in addition to goods train guards and a small clerical contingent.

Some figures as to the volume of the Traffic dealt with in the Yard may be of interest. During the six months ending December 31st, 1911, 805,033 wagons were passed through the Yard, or a weekly average of 30,962. Assuming that half these are loaded wagons it will be seen that approximately 154,810 tons of coal are dealt with in the Yard weekly.

Most of the locomotives working to and from Wath Yard are of the eight-wheels-coupled mineral type, a most powerful type of engine which enables very heavy loads to be worked into and out of the Yard. The engines used in the Yard are eight-wheels-coupled bogie tank shunting engines, which were specially designed for pushing heavy trains over the "humps." These engines have three high pressure cylinders, 18in. diameter, 26in. stroke; and weigh in working order some 97 tons each.



CABIN "A.' ELECTRIC SWITCHBOARD AND DIAGRAM OF POINTS.



CASTING LOADED ON THE CANTILEVER PRINCIPLE.

EXCEPTIONAL TRAFFIC.

THE movement of what is known as "Exceptional" Traffic is best appreciated by those directly concerned, as the general public know little of the skill required in loading, and the vigilance which has to be exercised in its transportation.

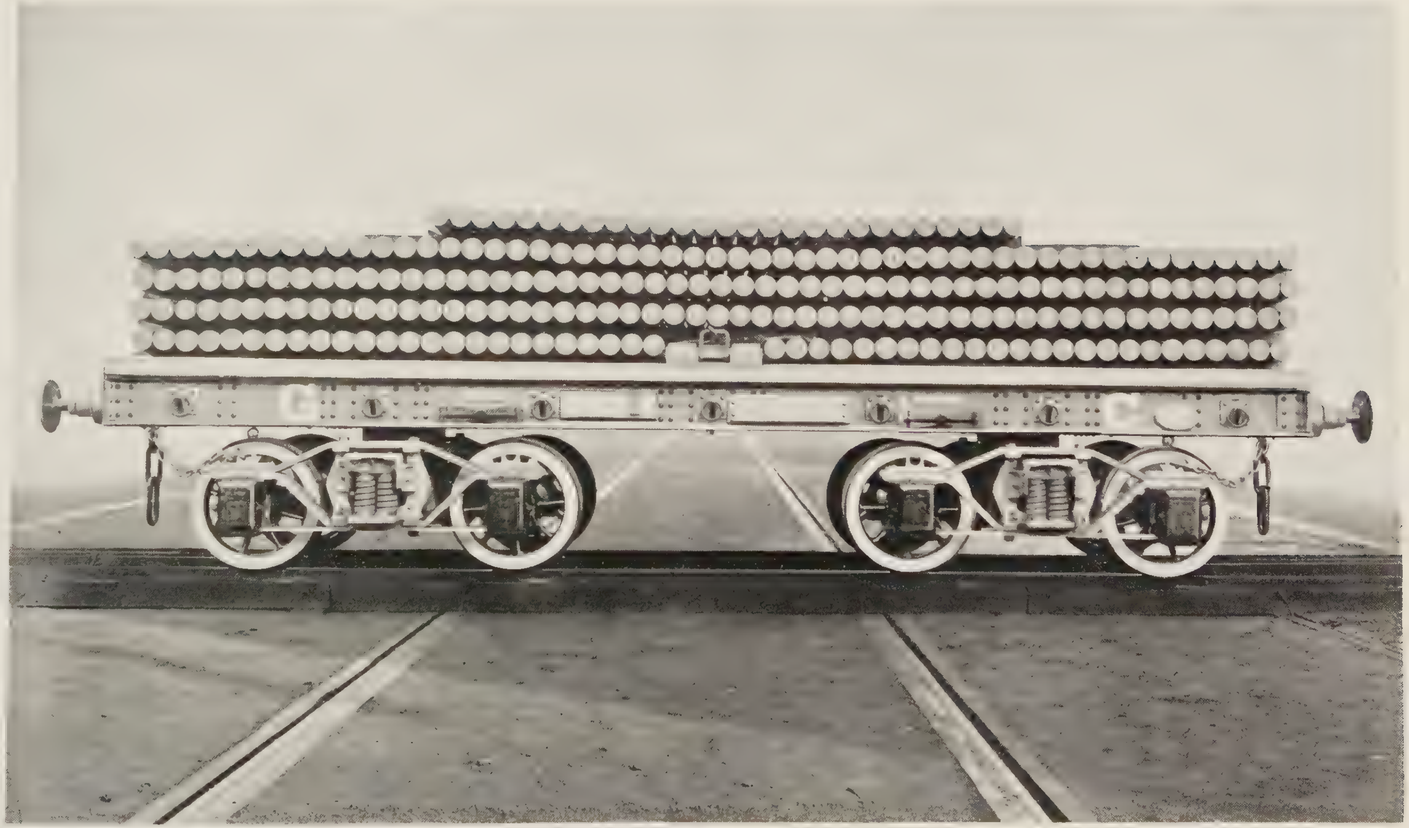
In this particular branch of Railway Work the Great Central Company can well claim that its motto "Forward" is no misnomer.

Reared in the midst of the boiler and armour plate making centres of Lancashire and the rolling mills of Sheffield and Rotherham, this Railway has obtained an unique experience in the handling of consignments of exceptional measurements and weights, such as armour plates, ship shafts, marine and Lancashire boilers for the Government and private Dockyards, big gun castings for Woolwich Arsenal, besides girders, channel bars, angle irons, locomotives, portable and traction engines, lathes, boring machines, etc.

The men engaged in this branch of Railway Work are specially trained for their business and must have an intimate knowledge of the road to be traversed, as allowance must be made for the successful clearance of sharp curves, station platforms, bridge parapets and abutments, tunnels, etc.

A Railway Company is often called upon to convey articles of such dimensions that to work them with the ordinary traffic would be impossible, their peculiar shape, width, height, etc., causing them to foul the parallel set of metals.

These are consequently worked on Sundays by special train when the traffic is very light, and arrangements can be made to keep both roads clear.



50 TON FLAT WAGON

These special loads are termed "Out of Gauge," for the reason that they overlap the maximum loading gauge, or, in other words, would not allow sufficient clearance of the objects already mentioned.

It is sometimes necessary, in the case of a very doubtful piece, to construct, and run over the section of line to be negotiated, a "template" of the exact dimensions of the article to be conveyed, in order to place beyond doubt the practicability of its safe transit.

The cantilever principle of loading, now generally adopted by all railways, owes its inception to the Great Central Company.

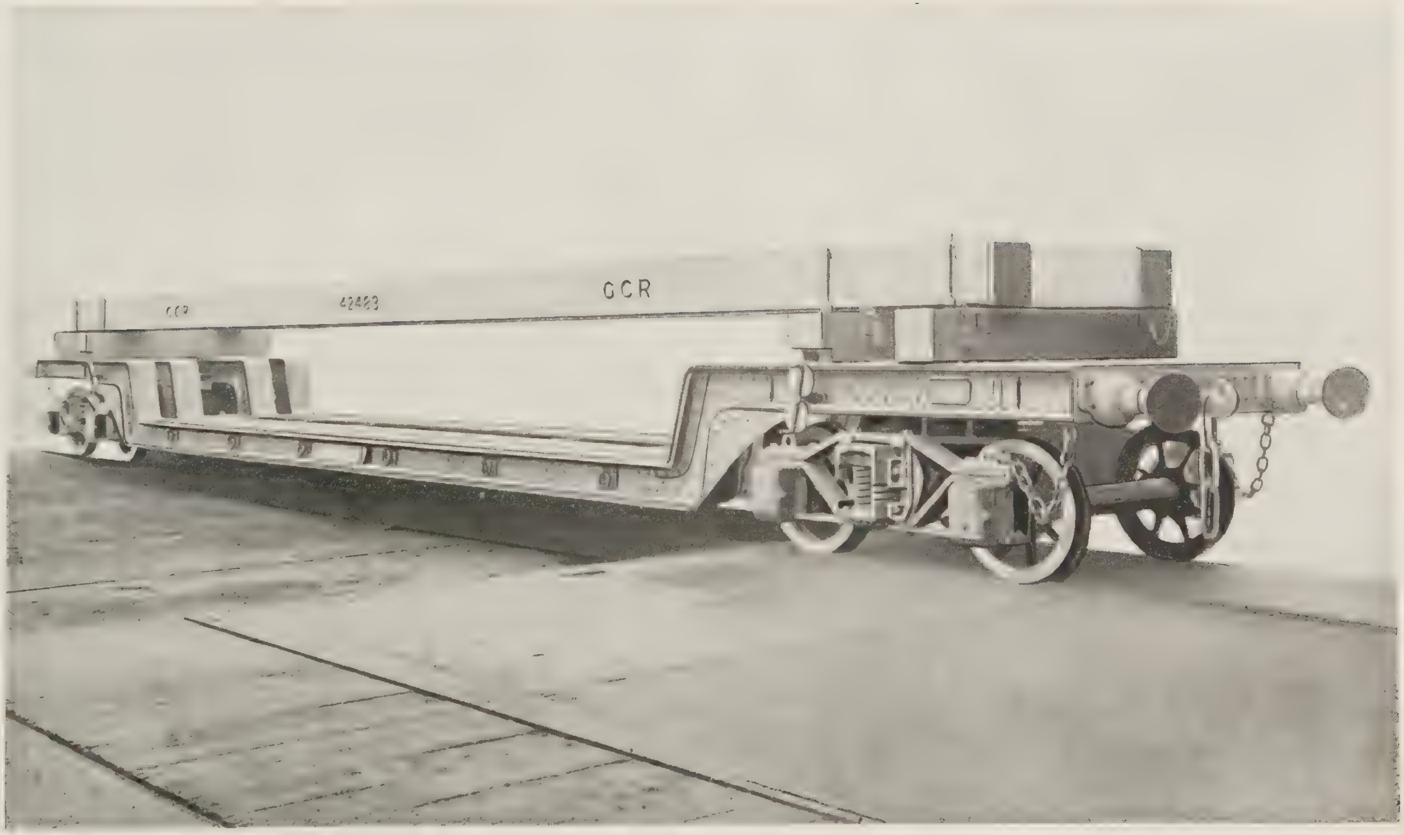
This method is applied in the loading of articles of extraordinary weight, such as hydraulic press parts, etc., ranging from 50 to 90 tons each in weight, as there is not a truck yet built that will carry these giant masses on its own axles. The illustration on page 212 conveys a very realistic impression of how the weight is distributed.

There is no doubt that this plan of loading was evolved at a time most opportune to Inland Manufacturers, and solved for them the question of a practicable means of getting their manufactures to the Seaboard, thus enabling them to compete for the Foreign Trade as against their more favourably situated competitors at the ports.

Amongst the various types of vehicles recently constructed at the Great Central Company's Dukinfield Works are some special heavy weight carrying wagons called 'Well Wagons' and 'Flat Wagons.'

The Company has a reputation for handling some of the most extraordinary kinds of loads, which invariably possess much more weight than bulk, though occasionally both.

In some cases, on account of bulk alone, traffic on



50-TON WELL WAGON.

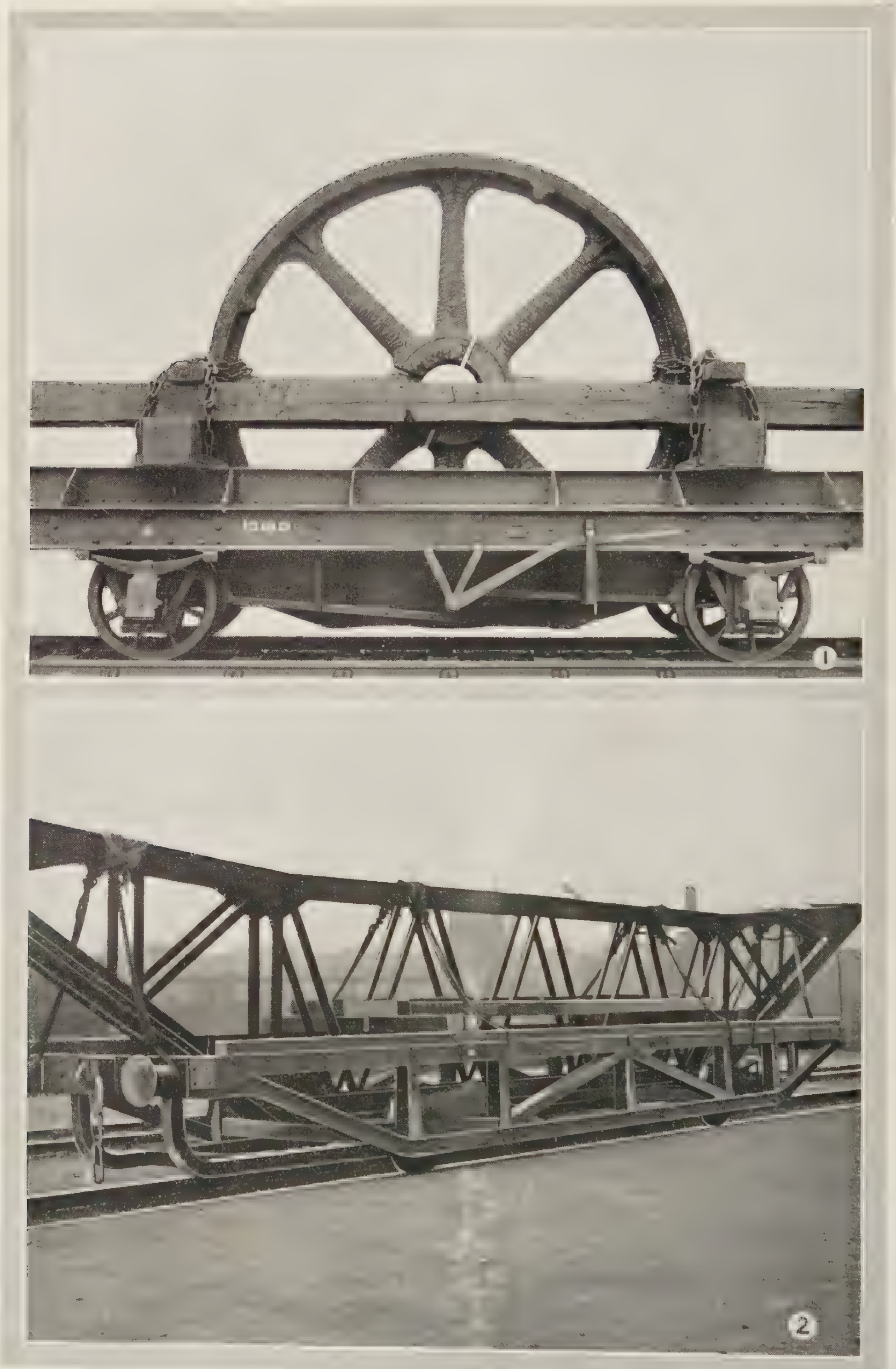
parallel lines has to be stopped until such loads have safely passed, and this traffic is specially worked when other traffic is at its quietest. It is extremely rare that a load has to be lost on account of being too unwieldy.

Not the least of the difficulties attending the handling of massive castings, ingots, blooms, forgings, etc. to be overcome are due to the small radius of the curves of the lines in the great steel works, dockyards, etc., and to successfully negotiate them bogies become imperative. Generally speaking, there is a limit to the curve that a bogie wagon will negotiate, without the wheels fouling the main frame, but in the case of all Great Central trucks now being constructed, the radius of the curve does not need the least consideration, as the bogies may be turned completely round on their centres, or worked by means of a yard turn-table from one line to another at right angles thereto, if required.

The Bogies of all the wagons are uniform and of the "Diamond" frame type. The wheels are 2ft. 9in. diameter, with cast steel centres, the axles having journals 13 inches long and 7 inches diameter. The axle boxes are of cast steel, with white metal lined bearings and oil lubricator pad; the wheel base of the bogies is 5ft. 6in. and each is fitted with a powerful screw brake that is unaffected by the rotation of the bogie.

The Well Wagons are 55ft. 6in. long, over headstocks, and 32ft. and 25ft. long respectively in the well portion. There are two lengths of these wagons, the distance from centre to centre of bogies in the two kinds of wagons being 45ft. 6in. in one case and 38ft. 6in. in the other.

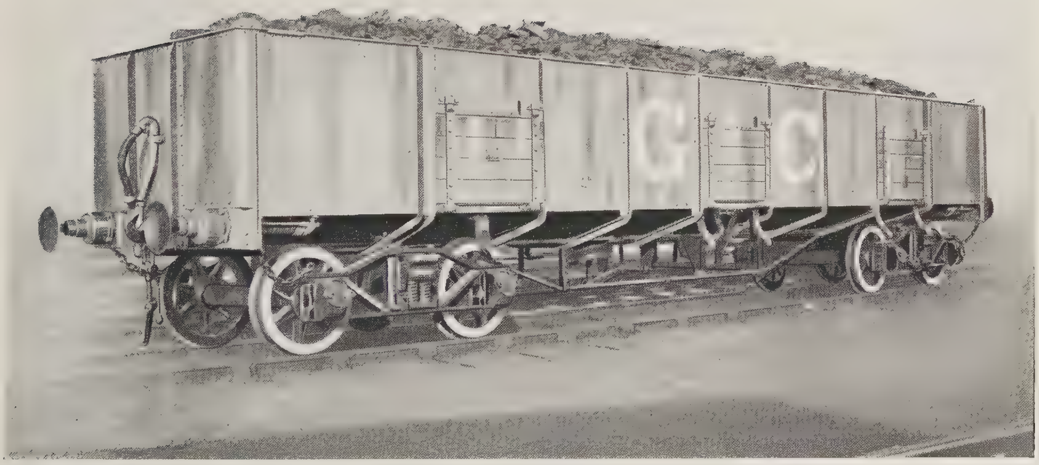
There are also two kinds of Flat Wagons, each 25ft. long, and arranged to carry a 50-ton distributed load, or a 25-ton central load, on swivelling skids or carriers.



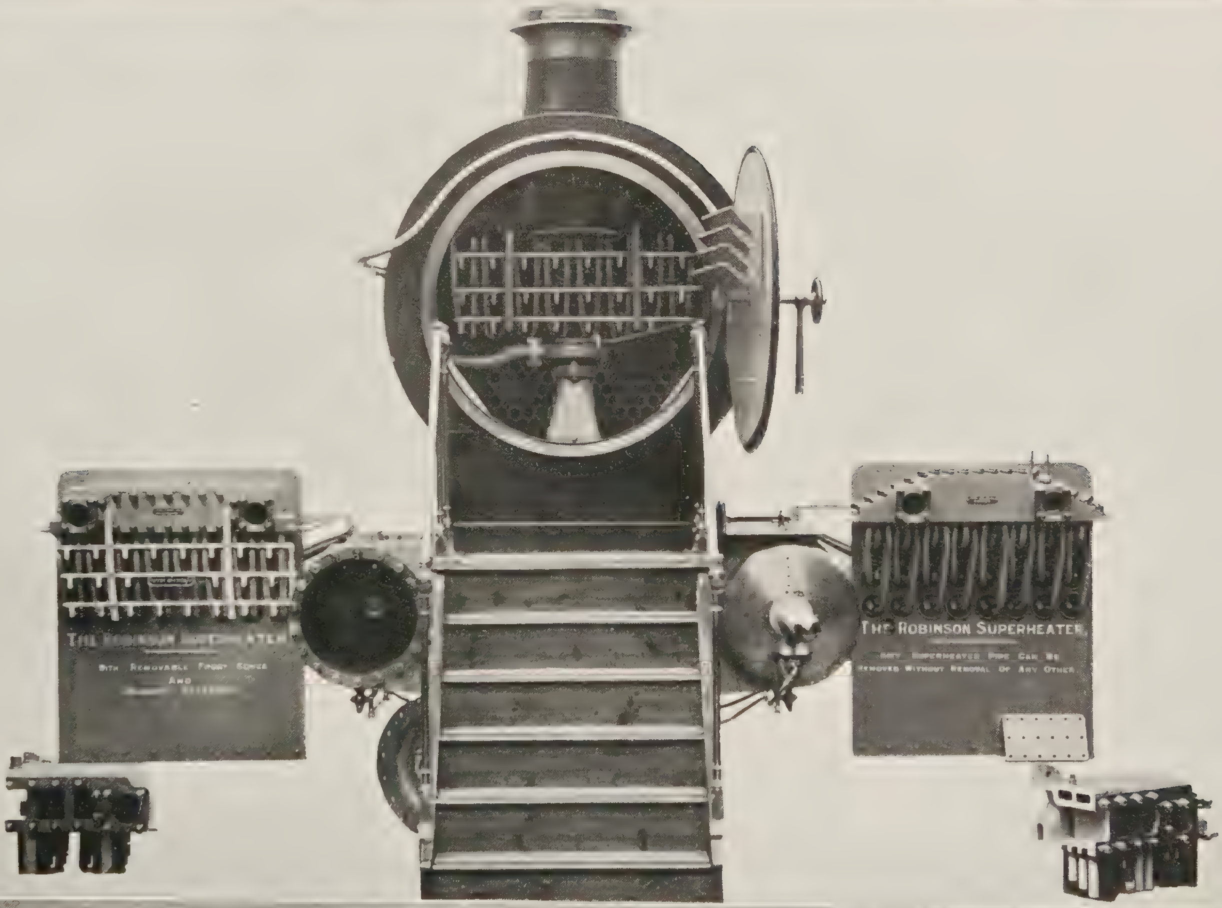
METHODS OF CONVEYING EXCEPTIONAL TRAFFIC.
1.—Large Wheel Casting. 2.—Heavy Iron Girder.

In the illustration of the Well Wagon on page 216 large baulks of timber and certain cross timbers are shewn, but these are not a permanent equipment, though required to support an armour plate on edge, or such loads as necessitate their use.

The Flat Wagon illustrated on page 214 is shewn under a test load of wagon axle forgings of fifty tons gross.



40-TON COAL TRUCK.


WITH REMOVABLE FRONT COVER
AND
THE ROBINSON SUPERHEATER.
ANY SUPERHEATER PIPE CAN BE REMOVED WITHOUT REMOVAL OF ANY OTHER.

THE "ROBINSON" SUPERHEATER.—*See Page* 222.

TYPES OF GREAT CENTRAL LOCOMOTIVES.

THE large Goods and Mineral Engines may broadly be divided into three classes, viz., those used for heavy mineral, express goods, and fish and general goods traffic respectively.

The Engines used for heavy mineral and express goods trains, with the exception of the diameter and the arrangement of wheels, are almost identical with each other, all using the same cylinders, and having many details, such as axles, axleboxes, springs, rods, and motion, in common.

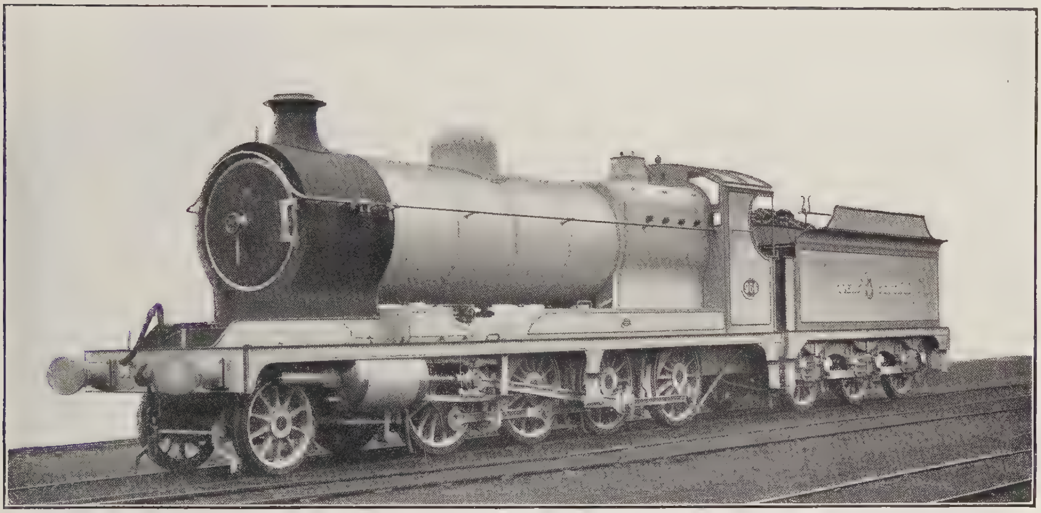


FIG. 1.

MINERAL ENGINES.

The Engine illustrated above (*Fig. 1*) is one of a large number now in use and under construction for Heavy Mineral Traffic on the Great Central Railway. It has the following leading dimensions:—

Cylinders, 21in. diam. by 26in. stroke.

Piston Valves, with inside admission, 10in. diam.

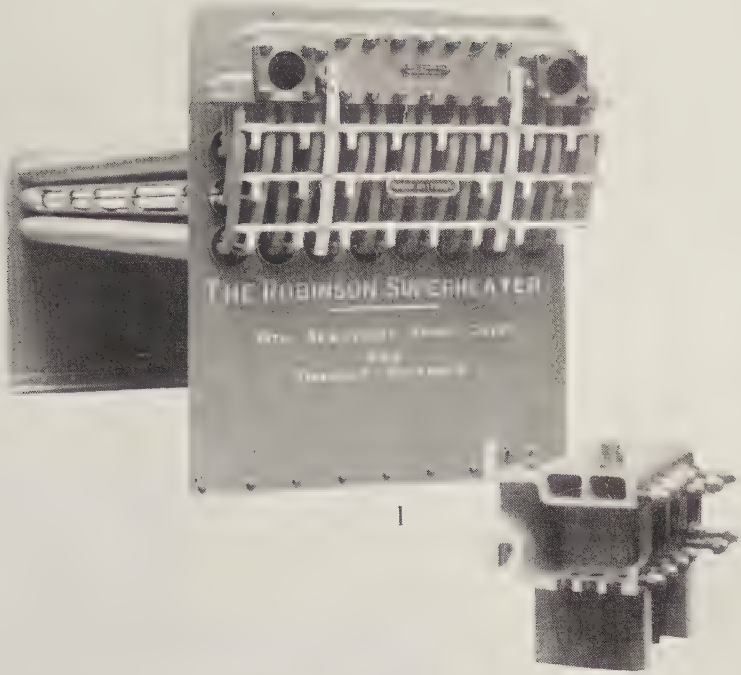
Coupled Wheels, 4ft. 8in. diam.
Truck Wheels, 3ft. 6in. diam.
Boiler:—Length of barrel, 15ft. 0in.
Largest diameter outside, 5ft. 0in.
Length outside firebox, 8ft. 6in.
Height of centre above rail, 8ft. 6½in.

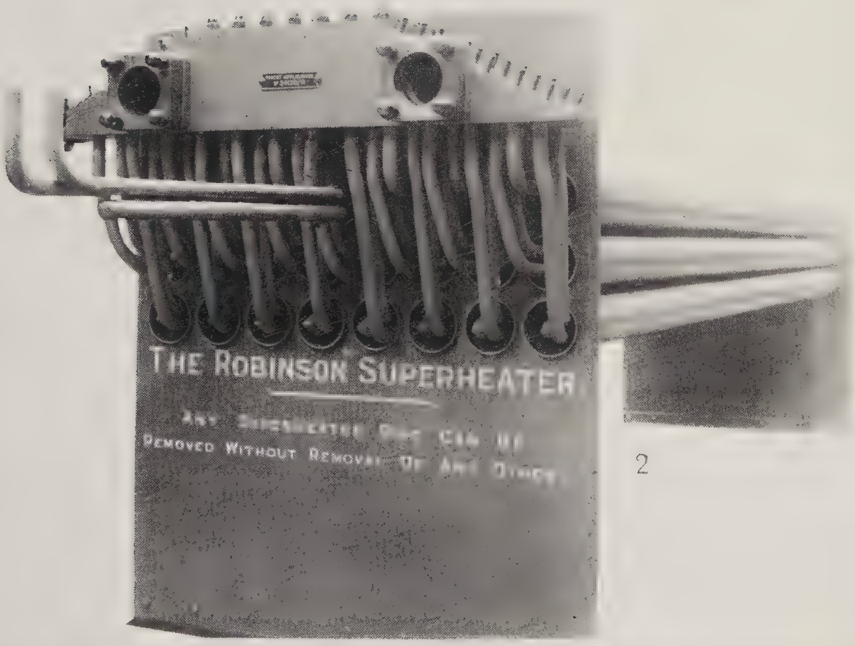
The Boiler is fitted with a "Robinson" smoketube Superheater of 24 elements, the pipes of which are expanded directly into the header, which occupies its usual position across the smokebox and above the tubes, so as to leave the latter unobstructed for cleaning. This is now the standard design of superheater employed by the Great Central Railway, and is the invention of the Chief Mechanical Engineer to the Company. There are 24 large tubes 5¼in. outside diameter, containing the superheater elements, each of which consists of four lengths of $1\frac{1}{16}$in. bore solid drawn steel pipe in series, the return bends being made solid and thickened up on Howell's "Torpedo" system. There are also 122 ordinary tubes 2in. outside diameter.

The Heating Surface is:—

Tubes	1,421	square feet.
Firebox	153	„ „
Total evaporating surface ...	1,574	„ „
Inner surface of Superheater pipes	376	„ „
Total heating surface	1,950	„ „
Grate Area...	26	square feet.

All parts of the engine have been designed to duplicate as far as possible with those of existing types. The boiler is identical with that used for the "Atlantic" engine,




THE ROBINSON SUPERHEATER
ANY SUPERHEATER UNIT CAN BE
REMOVED WITHOUT REMOVAL OF ANY OTHER.
2

THE "ROBINSON" SUPERHEATER

1.—With Transverse Compartment Header, removable Front Cover and Draught Retarder; and (lower a Transverse Section of Header. 2. Two Compartment Header, with removable Top Covers.

the cylinders will interchange with the "Atlantic," 4-6-0 and 0-8-0 engines, and the coupled wheels, axles, motion, etc., are similar to those of the existing 0-8-0 class.

The leading truck is of the swing link type, having a cross travel of 6in., which, in conjunction with thin flanges on the intermediate and driving wheels, enables the engine to pass five chain curves with ease.

The boiler is designed for a working pressure of 180lbs. per square inch.

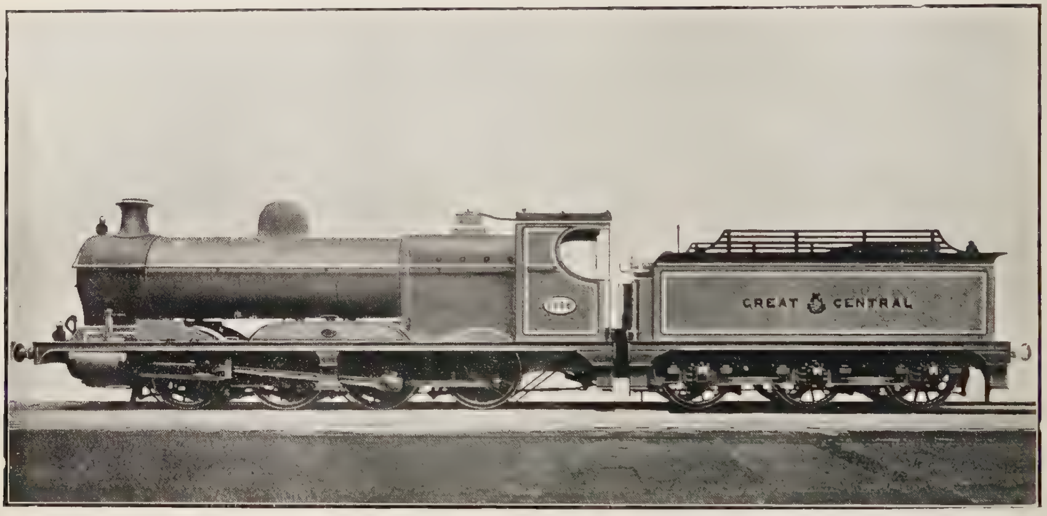


FIG 2.

The tender is of the Great Central Railway standard type, with a capacity of 4,000 gallons of water and five tons of coal, and carried on six wheels 4ft. 4in. diameter.

The weight of the engine in working order is 72 tons, 65 of which are on the coupled wheels, and of the tender 47 tons 6 cwts., making a total of 119 tons 6 cwts.

The earlier mineral engines are all exactly alike, of the outside cylinder, eight-wheels-coupled (0-8-0) type, with cylinders 19in. diameter by 26in. stroke, and 4ft. 8in. wheels. *(Fig. 2.)* The boiler is 4ft. 9in. diameter by 15ft. 0in. long, and contains 207 steel tubes 2in. outside diameter. The firebox is 7ft. 9in. long, placed over the trailing coupled axle, and is of the flat-topped type. The total heating surface is 1,805 sq. ft., with a grate area of 23·6 sq. ft. The working pressure is 180lbs. per square inch. The total wheelbase of the engine is 17ft. 1in., and to facilitate its passing round curves the flanges of the intermediate and driving tyres are made thin, and $\frac{1}{2}$in. total cross travel is allowed to the leading axleboxes. The third axle from the front end is the driver, and this enables very long connecting rods to be used, these being 10ft. 10in. long. The steam chests are placed inside the frames, and the balanced slide valves are driven by ordinary direct link motion reversed by screw gear. The engine is provided with the necessary combination ejector and piping for working automatic vacuum braked stock, and the steam brake, which is applied to all its wheels, is controlled either by the train pipe vacuum or directly by the driver. As far as possible, the number of parts of these engines has been reduced by the employment

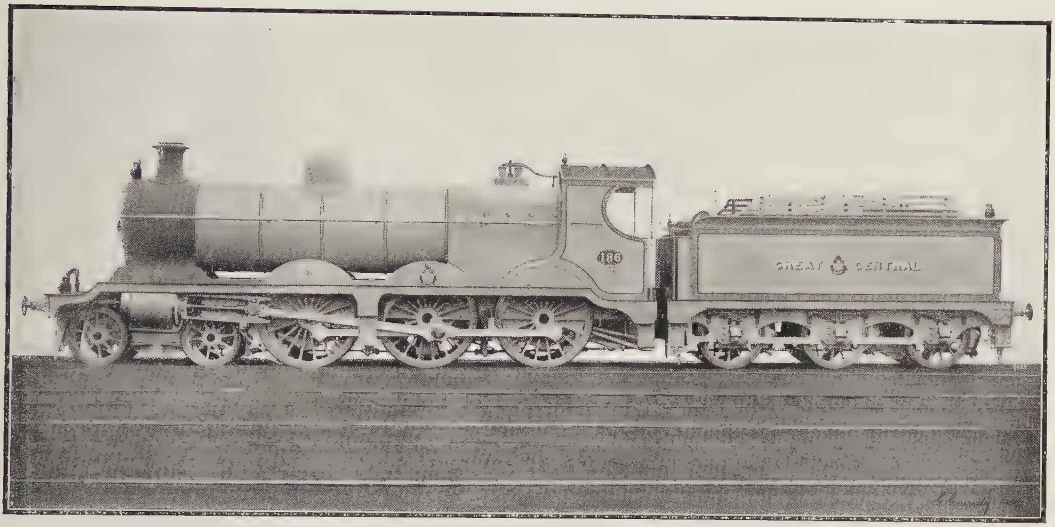


Fig 3. (See next page.)

of steel castings, and all the working parts are liberally proportioned and very accessible.

FAST GOODS AND FISH ENGINES.

Coming to the Fast Goods and Fish engines, all of which have been designed, as in the case of the preceding class, by Mr. John G. Robinson—the Great Central Company's Chief Mechanical Engineer — these, though entirely of the six-wheels-coupled outside cylinder type, with leading four-wheeled bogie (4-6-0), are not all of one class. The earlier ones have 6ft. coupled wheels, with cylinders, boiler, and motion identical with those of the mineral engines. *(Fig. 3.)* These engines are employed chiefly on the fast long-distance fish trains from Grimsby to the South and West.

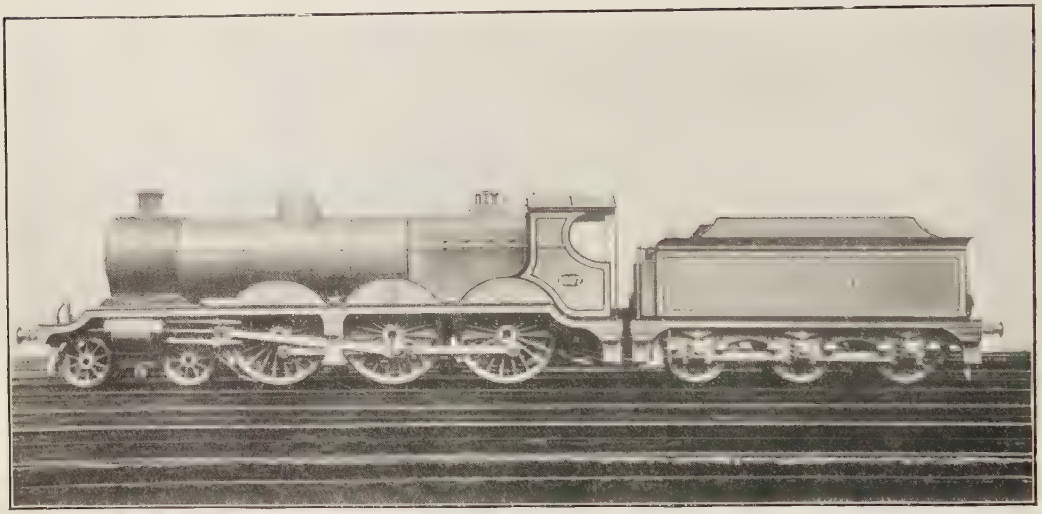


Fig. 4.

There are two later classes having the same cylinders, but a different diameter of coupled wheels and rather larger boilers. One of these has coupled wheels 6ft. 6in. diameter with a boiler 5ft. 0in. diameter, 15ft. long, the firebox being 8ft. 6in. long. The total heating surface is 1,951 sq. ft., and the grate area 26 sq. ft. *(Fig. 4.)* These engines are almost equally efficient on any service, their great boiler power enabling a very high tractive effort to be maintained up to high speeds, and though primarily designed for fast perishable Goods Traffic, they have been found well suited for the heaviest Express Passenger Service.

The other class has coupled wheels 5ft. 3in. diameter, and a rather smaller firebox, giving $23\frac{1}{2}$ sq. ft. of grate area, with practically the same heating surface. *(Fig. 5.)*

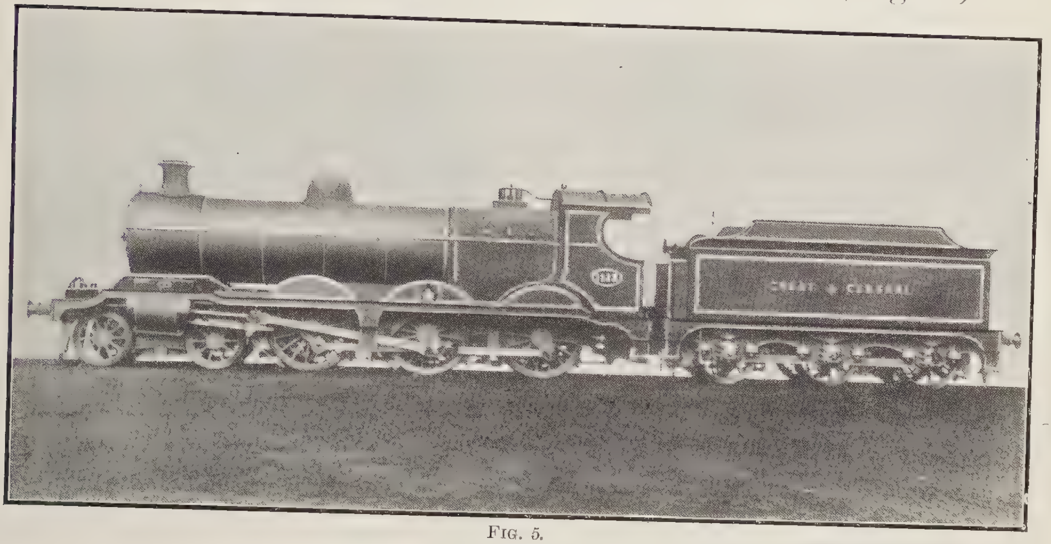


Fig. 5.

These engines are used for long-distance Express Goods Trains, which, however, are not timed as fast as the fish and perishable traffic handled by the first-named classes, though all three types have done good work with race and express excursion trains.

The third class of engine is that used for General Goods Traffic. It is considerably lighter than the preceding classes, and is of the six-wheels-coupled type, having inside cylinders $18\frac{1}{2}$in. diameter by 26in. stroke. *(Fig. 6.)* The boiler is 5ft. 0in. diameter by 11ft. 0in. long, and the firebox, also of the flat-topped type, is 6ft. 4in. long. The heating surface is 1,451 sq. ft., and the grate area is 18¾ sq. ft. The wheels are 5ft. 1in. diameter, with a total wheelbase of 17ft. 1in., the leading axlebox having ½in. total side play, as in the mineral engines.

The tender used for all the above classes is of the six-wheeled type, having a capacity of 4,000 gallons of water, and five tons of coal. It is fitted with a water pick-up scoop and with a steam brake on all wheels.

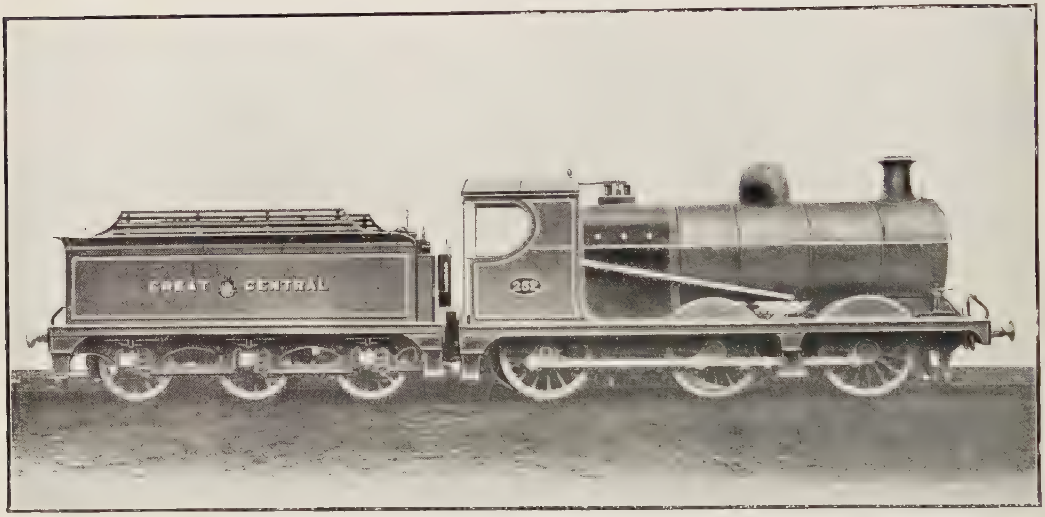


FIG. 6. (See previous page).

The working pressure of all the engines is 180lbs. per square inch, and their weights are as under:—

		Wheels.		*Engine.*		*Tender.*		*Total.*	
		ft.	*in.*	*tons*	*cwt.*	*tons*	*cwt.*	*tons*	*cwt.*
2-8-0	Mineral Engines ...	4	8	72	0	47	6	119	6
0-8-0	Mineral Engines ...	4	8	63	10	47	6	110	16
4-6-0	"Fish Train" Engines ...	6	0	65	8	47	6	112	14
4-6-0	Mixed Traffic Engines ...	6	6	70	10	47	6	117	16
4-6-0	Fast Goods Engines ...	5	3	67	8	47	6	114	14
0-6-0	Goods Engines	5	1	51	14	47	6	99	0

In addition to the foregoing there are four heavy Shunting Tank Engines designed specially for the Concentration Yard at Wath, having eight-coupled wheels 4ft. 8in. diameter, with a four-wheeled trailing bogie. (*Fig.* 7.) These engines have three cylinders 18in. diameter by 26in. stroke arranged in line across the engine below the smoke box. The two outside cylinders drive the third and the inside the second axle from the leading end. The general construction is on the lines of the eight-coupled mineral engines, but the boiler is larger, being similar to that of the 6ft. 6in. six-coupled bogie-express goods engines, having 1,971 sq. ft. of heating surface, and 26 sq. ft. of grate area. The side and bunker tanks have a capacity of 3,000 gallons of water and four tons of coal. The weight in working order is between 96 and 97 tons.

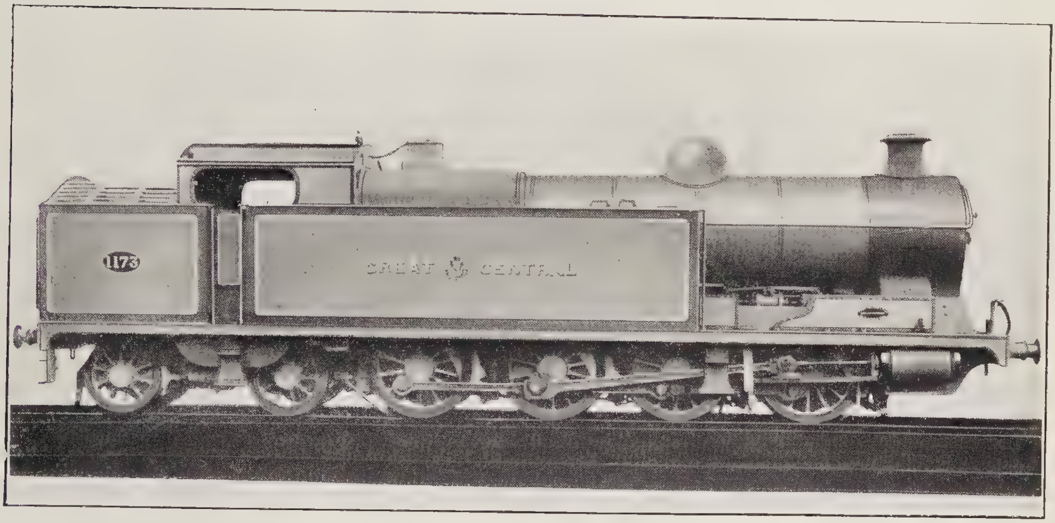


Fig. 7.

A further and entirely new class of Engine (*Fig.* 8), equally suited for Fast Goods, Fish, or Express Passenger Traffic, has just been designed and built at Gorton. These Engines are of the 4-6-0 class, with 6ft. 9in. coupled

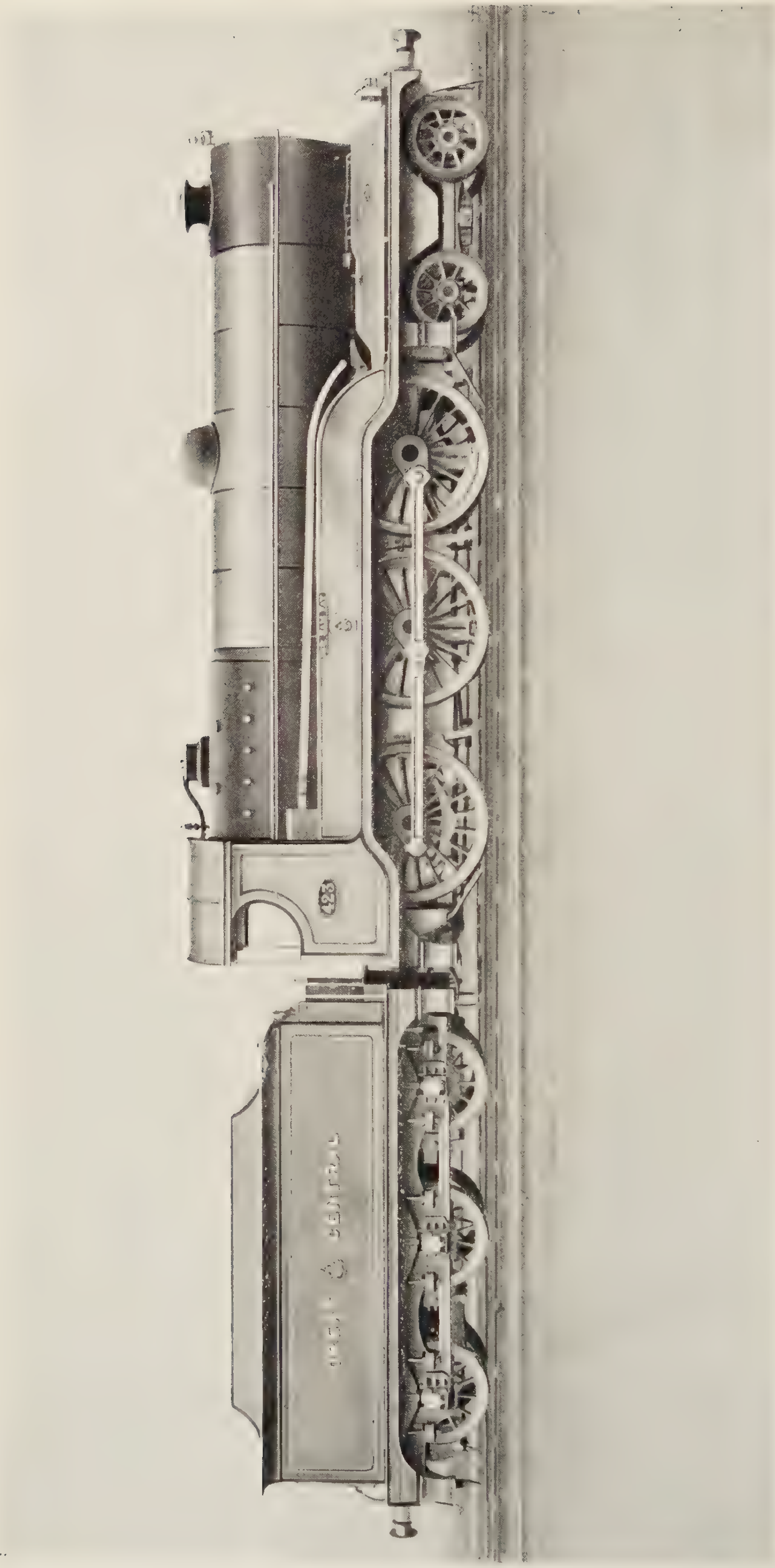


FIG. 8

wheels, but, unlike any of the others with that wheel arrangement, are fitted with inside cylinders.

They are considerably more powerful than any of their predecessors, having cylinders 21½in. diameter by 26in. stroke, with a boiler 5ft. 6in. diameter and 17ft. 3in. long, the length of the firebox being 8ft. 6in. outside. The first pair of coupled wheels are the "drivers," and the length of the barrel is sufficient to enable the second pair to come in front of the firebox, thereby enabling the latter to be made of adequate depth to ensure good steaming and durability.

Steam is distributed by means of 10in. "Robinson" piston valves, with inside admission, driven through rocking shafts by Stephenson link motion.

The connecting rods are 6ft. 6in. in length, and have large ends of the "Marine" type. The crank axle journals are 9in. diameter and 9in. long, those of the coupled wheels being 8in. diameter and 12in. long. The boiler is provided with a "Robinson" Superheater of 24 elements, similar to that fitted to the 2-8-0 Mineral Engines.

The following are the principal dimensions of the boiler :—

Diameter outside largest ring	5ft. 6in.
Length of barrel	17ft. 3in.
Length of firebox outside	8ft. 6in.
Number of tubes, 2¼in. diameter	157.
Number of tubes, 5¼in. diameter	24.
Length between tubeplates	17ft. 7⅞in.

Heating surface :—

Tubes (outside)	2,210	square	feet.
Firebox	167	,,	,,
Superheater (inside)	440	,,	,,
Total	2,817	,,	,,
Grate Area	26	,,	,,

Working pressure :—180lbs. per square inch.

The Engine is fitted with a 10½m/m exhaust steam injector, and with one of 10m/m for live steam, together with vacuum brake and train heating fittings. The bogie has a cross travel of 6in., sufficient to enable the engine to pass through 5-chain curves with ease. The ordinary standard six-wheeled Tender, having a capacity for 4,000 gallons of water and five tons of coal, and fitted with water pick-up apparatus, is used with the Engine.

The weight of the Engine in working order is 75 tons 5 cwts., of which 56½ tons are on the coupled wheels. That of the Tender is 47 tons 6 cwts., making a total of 122 tons 11 cwts.

It will be evident from the above description that these Engines are equally well adapted for either the fastest express work or for perishable traffic where very heavy loads have to be hauled at practically express speed, and that their construction marks a distinct forward step in the capacity of the locomotive stock, being in fact absolutely up to the limit imposed by the carrying power of the road at the time of construction.

It will be noticed that reference has been made to the use of a "Superheater" in the latest Mineral engines, and a more or less technical description of the apparatus is added. For the benefit of the non-technical reader it may be stated that a Superheater is an arrangement of pipes through which the steam passes after leaving the boiler on its way to the engine cylinders. These pipes are placed in tubes through which the hot gases from the firebox pass on their way to the chimney. The result is that the steam becomes very highly heated, to such a temperature in fact that lead would melt in it, and steam so heated is fully 30% more efficient than steam as it leaves the boiler.

Its use in an engine is therefore accompanied by great economy of coal and water. As the pipes in which the steam is heated are exposed to practically the full heat of the fire, it will be readily understood that all the parts of the apparatus should be of the best possible material, and, as far as possible, in one piece, without joints.

This is the chief feature of the Superheater used by the Great Central Railway, and designed by Mr. J. G. Robinson, the Company's Chief Mechanical Engineer. The heating pipes are expanded into the collector box or header, and are not bolted to it as is usual, so that the whole apparatus is practically solid metal throughout and capable of standing any possible amount of heat without the slightest deterioration. To say more would involve the introduction of technicalities outside the scope of the present paragraph, but it may be added that so successful has this Superheater been on these and other Great Central engines, that its universal application on the System, as well as on many other lines, appears to be only a matter of time and opportunity to fit it to the stock.

WOOL SALES AND FAIRS.

THESE are held from June to September inclusive, the principal ones being those held at:—

Alton
Andover
Ashford (Kent)
Aylesbury
Banbury
Barnham Junction
Basingstoke
Bicester
Birmingham
Blandford
Brackley
Bristol
Cardigan
Chepstow
Chester
Chichester
Cirencester
Devizes
Didcot
Dorchester
Dublin
Gloucester
Guildford
Henley-on-Thames
Hungerford
Leicester
Lewes
Liverpool
Loughborough
Lydney
Market Drayton
Marlborough
Monmouth
Newbury
Newport (I. of W.)
Newport (Mon.)
Newtown (North Wales)
Nottingham
Oswestry
Reading
Retford
Rugby
Rye (Sussex)
Salisbury
Shrewsbury
Stratford-on-Avon
Swindon
Wallingford
Wantage
Wellington
Winchester
Wrexham

Representatives of the Great Central Railway Company attend such Sales to supply Merchants and Buyers with Rates, Routes, and all information respecting the Carriage of Wool over their system and to places beyond.

For particulars and dates of the London and Country Wool Sales see special cards issued by the Company.

CATTLE MARKETS.

THE Great Central Company's Representatives attend the following Markets:—

Aylesbury	...	Wednesdays and Saturdays
Banbury	...	Thursdays
Barnetby	...	Alternate Tuesdays
Brigg	...	Alternate Tuesdays
Doncaster	...	Tuesdays and Saturdays
Gainsborough	...	Mondays
Grimsby	...	Mondays
Hull	...	Mondays
Leicester	...	Wednesdays and Saturdays
Lincoln	...	Fridays
Liverpool (Stanley)		Mondays
Nottingham	...	Wednesdays and Saturdays
Penistone	...	Thursdays
Retford	...	Mondays
Rugby	...	Mondays
Salford (Manchester)		Tuesdays
Wakefield	...	Wednesdays

A Great Central Company's representative is in attendance at the principal Cattle and Sheep Fairs throughout the country.

FRUIT SALES.

THE Great Central Company's Representatives attend the following Markets:—

London.—Covent Garden, each weekday.

Liverpool.—Regular Sales on Mondays, Wednesdays, and Fridays.

Manchester.—Tuesdays and Thursdays; occasionally altered according to arrival of boats.

Hull.—The Auction Sales at Hull for Spanish Fruit are held on Mondays and Thursdays. In the Summer Season the Sales for Fresh Fruit occur every day except Tuesdays.

SITES FOR WORKS.

By the Patents Act, 1907, the Foreign Manufacturer who holds a British Patent for articles of any description is required to make those articles in this country at the risk, should he neglect to do so, of losing his Patent rights, and whilst some patents have, under the provisions of the Act, been revoked, others are now being worked in Great Britain either directly by the Patentee or indirectly by firms who have acquired the Patent rights.

This has had the effect of establishing in various parts of the country new works employing British labour, principally in districts where land is cheap and rates are low.

Incidentally it has also drawn to the attention of home manufacturers who now suffer in urban areas from the heavy burdens of high land values and high rates, and who wish to change their location, to the advantages to be secured by transporting their operations to districts possessing the double advantage of cheap land and low rates.

In these days of keen competition it is essential that for the economical working of a manufactory and the handling of merchandise generally, there should be Direct Railway Access, and the desirability of a manufacturer establishing himself alongside the railway line so as to minimise carting expenses is unquestioned.

Adjoining the Great Central Railway which, from the Metropolis, passes Northward through the centre of England, throwing out branches Eastward and Westward to the coast, there are numerous sites available for the erection of new works, and eminently suitable for industrial development.

The Railway traverses the extensive Coalfields of South Yorkshire, Derbyshire, Nottinghamshire, and Lincolnshire, thus affording an easily accessible source of fuel supply, and with its direct connections with the Metropolis and the provincial towns and ports of the United Kingdom, and its Steamship Services to the Continent, forms a means of quick and convenient communication to all parts.

With the object of assisting manufacturers—both at home and abroad—in the choice of new locations, the Great Central Railway Company have had prepared a Register of these sites alongside their railway, the particulars being furnished by landowners who have large areas available.

From this Register information as to sites will be furnished on application to the Company's Estate Agent, Paton Street, Piccadilly, Manchester.

MAINTAINING A GOOD TRACK.

The following are the Addresses of the Great Central Company's Goods Representatives for the Districts named, to whom all communications respecting the business of the Company in such Districts should be addressed.

BARROW DISTRICT.
Great Central Agent, 104, Duke Street, Barrow-in-Furness.

BIRMINGHAM DISTRICT.
Great Central Agent, 3, New Street, Birmingham.

BLACKBURN DISTRICT.
Great Central Agent, 10, Cort Street, Blackburn.

BRADFORD DISTRICT.
Great Central Agent, 17, Bridge Street, Bradford.

BRISTOL DISTRICT.
Great Central Agent, 79, Victoria St., Bristol.

CARDIFF DISTRICT.
Great Central Agent, 67, St. Mary St., Cardiff.

DERBY DISTRICT.
Great Central District Goods Agent, Queen's Walk Goods Station, Nottingham.

DEWSBURY DISTRICT.
Great Central Agent, c/o G.N.R. Goods Station, Dewsbury.

GOOLE DISTRICT.
Great Central Agent, Arcade Buildings, North Street, Goole.

GRIMSBY DISTRICT.
Great Central District Goods Agent, Dock Offices, Grimsby.

HALIFAX DISTRICT.
Great Central Agent, c/o Thompson, McKay & Co., Ltd., 24, Southgate, Halifax.

HIGH WYCOMBE DISTRICT.
Great Central Agent, 2, Paul's Row, High Wycombe.

HUDDERSFIELD DISTRICT.
Great Central Agent, c/o Thompson, McKay & Co., Ltd., 49, New Street, Huddersfield.

HULL DISTRICT.
Great Central Agent, Kingston Street Station, Hull.

KEIGHLEY DISTRICT.
Agent, Great Central Railway, Keighley

LEEDS DISTRICT.
District Goods Manager, Great Central Railway, Wellington Road, Leeds.

LINCOLN DISTRICT.
District Goods Agent, Great Central Railway, Lincoln.

LIVERPOOL DISTRICT.
Great Central District Traffic Manager, 6, India Buildings, Fenwick Street, Liverpool.

LONDON DISTRICT.
District Goods Manager, Great Central Railway, Marylebone Goods Station, London.

MANCHESTER DISTRICT.
District Goods Agent or District Traffic Manager, Great Central Railway, London Road Station, Manchester.

MANSFIELD DISTRICT.
Goods Agent, Great Central Railway, Mansfield.

NEWCASTLE DISTRICT.
Great Central Agent, 89, Grey Street, Newcastle-on-Tyne.

NORWICH DISTRICT.
Great Central Agent, Tower Chambers, Opie Street, Norwich.

PLYMOUTH DISTRICT.
Great Central Agent, 4, Courtenay St., Plymouth.

READING DISTRICT.
Great Central Agent, c/o Great Western Railway Station, Reading.

ROCHDALE DISTRICT.
Great Central Agent, 29, Milnrow Road, Rochdale.

RUGBY DISTRICT.
District Goods Agent, Great Central Railway, Rugby.

SHEFFIELD DISTRICT.
District Goods Agent or District Goods Manager, Great Central Railway, Victoria Station, Sheffield.

SOUTHAMPTON DISTRICT.
Great Central Agent, 10, Canute Road, Southampton.

SOUTH EASTERN DISTRICT.
Great Central Agent, 17, St. Paul's Churchyard, London, E.C.

STAVELEY DISTRICT.
District Goods Agent, Great Central Railway, Staveley Town, near Chesterfield.

STOKE DISTRICT.
Great Central Agent, 2, Glebe Buildings, Glebe Street, Stoke-on-Trent.

WAKEFIELD DISTRICT.
Goods Agent, Great Central Railway, Wakefield.

WEST HARTLEPOOL DISTRICT.
Great Central Agent, 9, Victoria Terrace, West Hartlepool.

—*SCOTLAND.*—

GLASGOW DISTRICT.
Great Central Agent, 162, Buchanan Street, Glasgow.

EDINBURGH DISTRICT.
Great Central Agent, 75, Princes Street Edinburgh.

—*IRELAND.*—

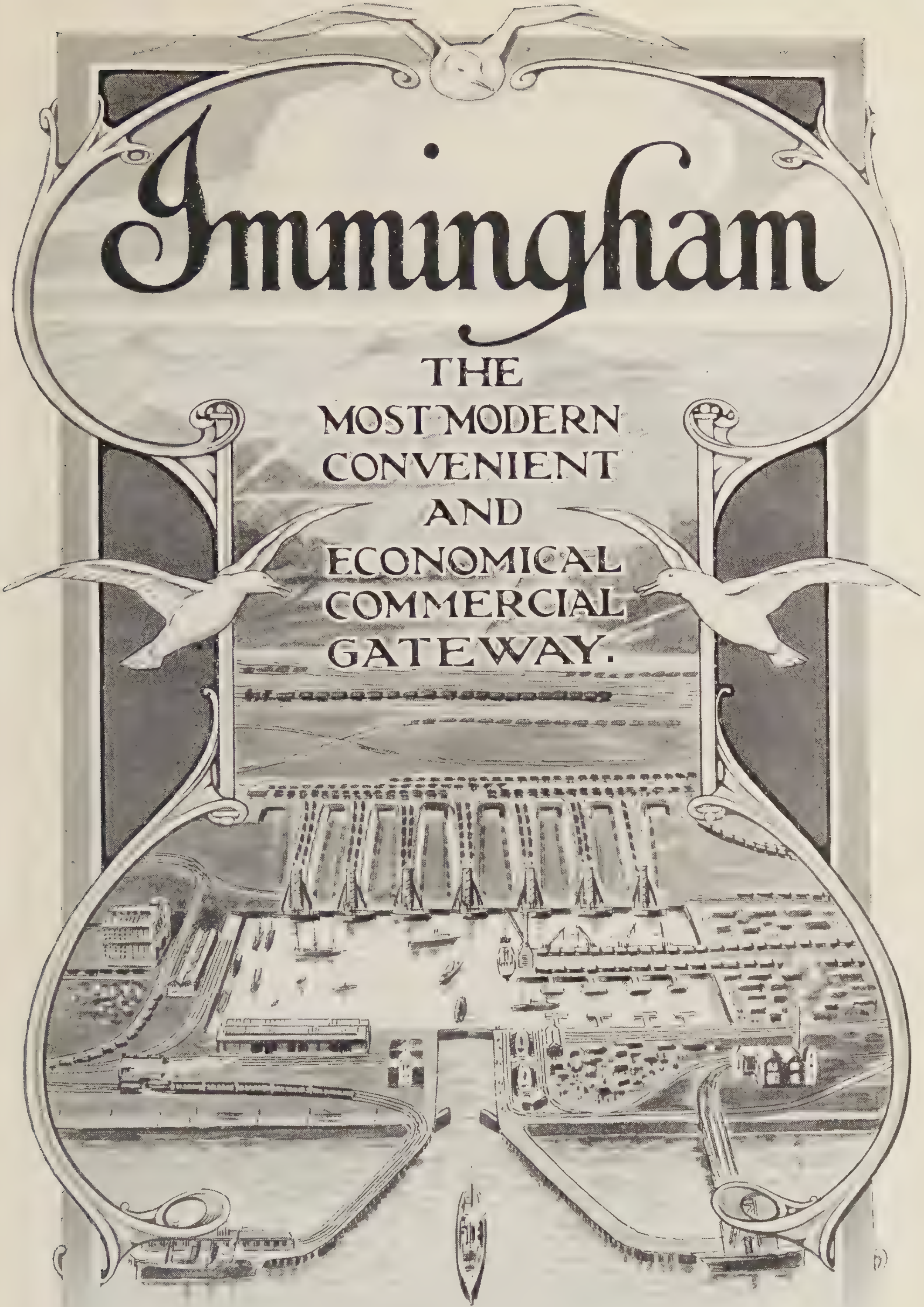
BELFAST DISTRICT.
Agent, G. N. & G. C. Railways Joint Office, 10, Bedford Street, Belfast.

CORK DISTRICT.
Great Central Agent, Railway Chambers, King's Street, Cork.

DROGHEDA & DISTRICT.
Great Central Agent, 5, North Wall, Dublin.

DUBLIN DISTRICT.
Great Central Agent, 5, North Wall, Dublin.

LONDONDERRY DISTRICT.
Great Central Agent, Waterloo Place, Londonderry.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